DOCUMENT RESUME

ED 392 994 CE 071 193

AUTHOR	Arnold, Vivian O., Ed.
TITLE	North Carolina Council of Vocational Teacher Educators. Proceedings of the Annual Summer Workshop (10th, Raleigh, North Carolina, August 1995).
INSTITUTION	North Carolina Council of Vocational Teacher Educators.; North Carolina State Dept. of Public Instruction, Raleigh. Div. of Vocational and Technical Education Services.
PUB DATE	Aug 95
NOTE	73p.
PUB TYPE	Collected Works - Conference Proceedings (021) -- Reports - Research/Technical (143)
EDRS PRICE	MF01/PC03 Plus Postage.
DESCRIPTORS	*Business Education; Educational Attitudes; Educational Needs; *Ethics; Higher Education; High School Graduates; Home Economics; Job Skills; Office Occupations Education; Outcomes of Education; Program Effectiveness; *Public Service; School Community Programs; School Community Relationship; Secondary Education; *Self Concept; Service Learning; *Shorthand; *Technology Education
IDENTIFIERS	North Carolina

ABSTRACT

This document contains five research reports selected for presentation at a North Carolina research conference. The following are included: "An Examination of Various Shorthand Types and Their Usefulness in the North Carolina University Business Education Curriculum" (Carolyn S. Jewell); "Attitudes of North Carolina Principals toward Secondary Technology Education Programs" (Larry R. Jewell); "Home Economics Undergraduates' Ethical Inclinations Preceding and Following Ethics Instruction" (Cheryl L. Lee); "Effects of Community Service and Service Learning on Multidimensional Self Concept of Secondary School Students" (Phillis Q. Ostheim and Larry R. Jewell); and "Skills Employers Really Need from Their High School-Graduated Employees." Each of the reports are based on studies conducted by the authors and each contains reference lists. (KC)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED 392 994

Proceedings

North Carolina Council of Vocational Teacher Educators

Hosted by
Vocational and Technical Education
and
Staff Development
North Carolina Department of Public Instruction

Tenth Annual Meeting
Summer Workshop
Raleigh, North Carolina
August 1995

CE071193

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☐ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

V Arnold

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

BEST COPY AVAILABLE

PREFACE

The 1995 proceedings of the North Carolina Council of Vocational Teacher Educators (NCCVTE) Annual Research Conference consists of five papers selected by a review committee composed of teacher educators from North Carolina. This year's Research Committee consisted of Dr. Rita Noel, Western Carolina University; Dr. Tom Allen, Appalachian State University; Dr. Robert Wrisley, East Carolina University; and Dr. Vivian O. Arnold, Chairperson, East Carolina University. Dr. Lilla Holsey, 1995 NCCVTE President also participated in the review process.

Special thanks to the Department of Public Instruction staff, Ms. June Atkinson, Director, Vocational and Technical Education and Mr. Dan Bruffey, Consultant, Staff Development, for their support of the Research Conference.

Vivian O. Arnold, Editor
1995 NCCVTE Research Committee

Previous Chairs of the NCCVTE Research Committee

1982	Maynord Iverson
1983	Maynord Iverson
1984	Rose Vaughan
1985	Robert Fritz
1986	Brenda Wey
1988	Jennie Hunter
1990	Jennie Hunter
1991	Tom Allen
1992	Tom Allen
1993	Frank Palmieri
1994	Vivian Arnold

North Carolina Council of Vocational Teacher Educators

Tenth Annual Research Conference Report
Summer Workshop, August 1995

Table of Contents

Preface and Former Research Committee Chairs.....ii

1. *An Examination of Various Shorthand Types and Their Usefulness in the North Carolina University Business Education*

   Carolyn S. Jewell
   Pembroke State University 1

2. *Attitudes of North Carolina Principals Toward Secondary Technology Education Programs*

   Larry R. Jewell
   North Carolina State University 16

3. *Home Economics Undergraduates' Ethical Inclination Preceding and Following Ethics Instruction*

   Cheryl L. Lee
   Appalachian State 34

4. *Effects of Community Service and Service Learning of Multidimensional Self Concept of Secondary School Students*

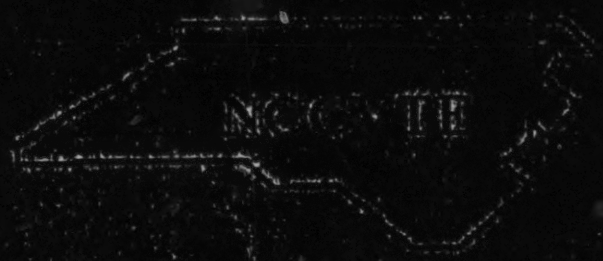
   Phillis Q. Ostheim
   Wayne County Schools

   Larry R. Jewell
   North Carolina State University 45

5. *Skills Employers Really Need From Their High School-Graduated Employees*

   Kenneth Volk
   East Carolina University

   Henry Peel
   East Carolina University 58



nth Annual
arch Report

gust, 1995
Raleigh,
h Carolina

BEST COPY AVAILABLE

An Examination of Various Shorthand Types and Their Usefulness in the North Carolina University Business Education Curriculum

Carolyn S. Jewell

Assistant Professor

Department of Business Education

Pembroke State University

Introduction

Shorthand has been recognized as a major area of study in business education. The goals, expectations, aspirations, needs, and desires of educators, students, parents, and employers do not remain constant. Therefore, business education, including shorthand, is subject to change in order to fulfill its unique mission in society.

For many years some form of shorthand, usually Gregg symbolic shorthand, has been taught at the high school level as a vocational course. What exactly is shorthand? It is a note-taking or short-writing method used by a secretary or an administrative assistant when dictated to in a face-to-face situation or by use of a Dictaphone, when taking telephone messages, or for other job related activities where there is a need for speed and accuracy. This skill helped prepare students for secretarial work.

Traditionally, shorthand has been considered a very useful skill for secretaries. However, technology has caused concern over the value of shorthand skills. This technology has made available many methods of dictation. Machine dictation, which has been referred to as using a Dictaphone, is used more often used today because it is fast and economical. Even though concern over the value of shorthand skills is present, shorthand dictation continues to be used.

Current research and scholarly literature have pointed out that shorthand programs throughout the nation are in trouble, but employers have continued to demand office workers with some type of note taking ability. Morrison (1985) stated that "because the development of shorthand skill and language arts goes hand in hand, secretaries with training in shorthand are able to edit communications accurately and efficiently...secretaries who are trained in shorthand are more proficient in English grammar, punctuation, spelling, and vocabulary." Terry and Carol Lundgren (1984) also stated that due to the various types of duties performed by secretaries, the skills of keyboarding and shorthand are expected to grow 40% in the next five years.

Skills needed by secretaries include proofreading, editing skills, typing, language arts skills, good judgment, listening skills, decision-making abilities, reasoning abilities, and legible handwriting. The secretary must also be prompt and punctual. "A closer analysis reveals that most of the skills

needed by secretaries are routinely developed and sharpened by learning shorthand and transcription skills" (Culver, 1982).

Culver (1982) also stated that personnel directors and office managers use shorthand as a screening device even though it may not actually be required for the position. There is no other subject in the school curriculum that teaches so many skills and has such a reputation of accomplishment. Secretaries with shorthand skills are quality individuals.

Shorthand dictation has been and will continue to be used in offices for various important reasons. Some of those reasons, according to Tilton, Jackson, and Rigby (1991, p.272) are "1) many executives prefer to work with one person on a regular basis who is familiar with their routine, 2) shorthand dictation is often used for complex documents requiring extensive explanation, and 3) shorthand is the preferred method for recording instructions, telephone messages, minutes of meetings, and ideas exchanged during informal meetings."

Fulton and Hanks (1985) stated three basic ways to originate correspondence. They were handwriting, dictation to a recording machine, and dictation to a secretary (shorthand). They further stated that writing the correspondence in longhand took four times longer than dictation, therefore, it was helpful to look at the advantages and disadvantages of using either shorthand or machine dictation.

Crews and Dickerson (1977, p.206) stated that "the business teacher education curriculum is an area of neglect and challenge. Major rethinking and changes are needed in the field if appropriate response is to be made to the increased demands and needs of present day society. Traditionalism has long held its grip on teacher education programs. The price paid for maintaining sacred programs and ideas has been the failure to respond in more than a token way to the current needs and challenges of business education."

Jack Johnson (1987) stated that the early 1900s' business education programs relied on traditional courses such as typewriting, shorthand, and accounting. This was justifiable. "The winds of change are prevailing because of the influence of high technology on business education curriculums." Changes are necessary to prepare students for a high-tech environment.

No matter how much change takes place, skill courses for students who want a secretarial or office related career are still needed. The change would need to be in the kind of skills courses taught. According to Johnson (1987) "though there has been tremendous growth in computer career fields, American business continues to demand workers who possess keyboarding, shorthand, and clerical skills." Many of these students will advance in their careers due to their solid foundation gained in skill courses.

Knosp and Holmquist (1986) stated that the secretarial profession is the largest and fastest growing career field in the nation according to the Bureau of Labor Statistics of the United States Department of Labor. It also leads other occupational groups in the number of job openings. It was also reported that "a survey of 5,721 secretarial and word processing ads found in newspapers from 24 U. S. cities, five Canadian cities, and San Juan, Puerto Rico showed approximately 33% of the ads requiring some form of shorthand." Although the ability to take shorthand was not a requirement for all secretarial positions, it seemed to aid the prospective employee to obtain a higher salary or a better job.

A knowledge of shorthand has many unique advantages according to Knosp and Holmquist: "1) it allows dictation on a one-to-one basis, with the opportunity to discuss what is being written; 2) it allows confidential dictation; and 3) shorthand can be taken anywhere - the only special equipment necessary is paper and pen."

Despite these advantages of having shorthand skills, a large number of schools have dropped these courses from their curricula, and they may find those slots being filled with nonbusiness classes. Knosp and Holmquist (1986) reported their findings from a survey sent to each public, private, and parochial school in the state of Nebraska. The following conclusions were reached as a result of the study: 1) only 47% of the responding high schools in Nebraska currently offer shorthand in their curricula; 2) the student dropout rate after one semester in a regular shorthand program is 23%; and lack of student interest was shown to be the major reason most schools dropped shorthand from their curricula. In this report, Knosp and Holmquist referred to "regular shorthand" as being the type of shorthand used in most Nebraska schools during the time of

their study. The three types used in the majority of the schools were Series 90 (Gregg), Diamond Jubilee (Gregg), and Century 21 (South-Western).

Educators must find an alternative to reverse the downward plunge of the shorthand curriculum. A recommendation offered by Knosp and Holmquist (1986) was to "try alternative shorthand systems." They believed "an alphabetic system, such as speedwriting may be easier to learn and may be considered fun by the students."

Schools (colleges, universities, and public high schools) which are currently teaching some method of shorthand should evaluate the material to see if it is satisfying the needs of the program. Schindler (1984) suggested the ten following guidelines for evaluating any shorthand system:

1. Soundness of the shorthand system
2. System's capability for use in occupational settings
3. System's practicality for personal use in note-taking
4. Ease with which the shorthand system can be taught, learned, and transcribed
5. Time required for mastering the system
6. Quality and extent of instructional materials for the learner
7. Quality and extent of materials and aids for the instructor
8. Ease with which the system can be learned by teachers already expert in another system
9. Ease with which the system can be learned by teachers with no prior shorthand background
10. Cost-effectiveness"

Symbolic shorthand requires two years to achieve an acceptable amount of skill. However, many schools have found it necessary to eliminate the second year of shorthand from their program or cut shorthand from the curriculum completely. The students who take only one year of symbolic shorthand have very little skill; certainly not enough to use it effectively at a job or for personal use. The shorthand program is very expensive for the schools due to the high attrition and dropout rates. Small classes and increasingly tight budgets have forced the schools to make these curriculum adjustments in the area of shorthand.

Charles T. Laurie (1981) stated that faculty is the main deterrent to change. His article presented an acronym, FIAT, which stands for Fear, Ignorance, Apathy, and Tradition. FIAT

represents the four reasons why faculty resist change. Many educators are unwilling to change until they fear losing their jobs. The thought of losing the job is often a catalyst for change. However, at that point in time, it is often too late to save the shorthand program.

Not all educators have the FIAT problem. Many have realized that alphabetic shorthand can be taught in a one-year program and a slow movement in that direction has been taking place. "Teachers are beginning to realize that in one year with a sound alphabetic shorthand system, students can attain a dictation speed of 80-90 words per minute. Actually, with intense dictation practice, students using an alphabetic system can attain speeds of 100 or 120 words per minute and have done so repeatedly in the proprietary schools. Alphabetic shorthand has been used successfully in many proprietary schools for the past 45 years. It is now becoming more widespread in the colleges, secondary programs, and adult education classes" (Schindler, p.5).

Statement of the Problem

At the college or university level some form of short-writing has been required for certification in the area of Business Education. Students at this level have been taught to teach shorthand to the students they will be teaching in high school. It was important to notice the effect the business world has had on high schools and their curriculum decisions which have dealt with shorthand teachers as well as their effect on teacher certification requirements.

As time has passed, many public high schools have dropped symbolic shorthand from their curriculum. There were several reasons for this, with the most important reason being the fact that students no longer viewed shorthand as a worthwhile skill in the business world. Curriculum and course content needed to be directly related to the purpose of the educational program. Very clearly, the public understood the primary importance of education as the foundation for a satisfying life, an enlightened and civil society, a strong economy, and a secure nation. The public should not have had and does not have any patience with undemanding public high school offerings. It usually takes at least two years at the high school level and at least three semesters at the college level for the average student to become efficient at using symbolic shorthand. While executives used the Dictaphone and other dictation devices, secretaries and the general public were beginning to feel

that all of the time they spent learning shorthand was wasted. Students started taking other classes, and enrollment in shorthand classes decreased at such a rate that many public high schools dropped it from their curriculum.

How does the state-wide decrease in shorthand enrollment in North Carolina public schools affect the shorthand classes in the colleges or universities? This research was designed to help provide answers. The colleges have the responsibility of training students to be able to teach the courses offered in the high schools.

Some high schools have removed symbolic shorthand from their curriculum without replacing it while other high schools have replaced the symbolic shorthand with speed-writing or some other alphabetic shorthand. The schools that have made this replacement have shown a definite increase in enrollment and in student retention. Possible reasons for this increase could be because students still feel a need for some note-taking skill and because students can acquire an efficient rate of speed in fewer classes, requiring less time than with symbolic shorthand classes.

It is still a requirement at some colleges or universities that the students be competent in "some short-writing" skill for business education teacher certification. The competency does not say that the course has to be symbolic shorthand. This information, added to the fact that some students will be trained in symbolic shorthand and then be assigned to a school for student teaching where some other note-taking skill is taught, leads to a very important discussion. Are colleges meeting their responsibility to students to be able to teach the courses offered in the public high schools? This answer can only be reached through a study which will show the number of public high schools still teaching some type of shorthand, the need of shorthand skills in the business world, and the amount of time that should be used learning a type of shorthand in comparison to the amount of time the skill is actually used in business.

Teaching alphabetic shorthand rather than symbolic shorthand at the university level should be considered. This will enable the university students to teach students at the high school level the more efficient of the two types of shorthand skills.

Purpose of the Study

The purpose of this study was to determine what teacher educators at the college and university level should do with shorthand in their curricula. Should college classes teach the method of "short-writing" taught by the majority of high schools? Should they continue teaching symbolic shorthand as they have in the past, or should they make their decision by comparing the time the skill will actually be used? To replace the symbolic shorthand courses with an alphabetic shorthand skill would free up hours because the students could achieve the required speed in a shorter period of time. Would that be the best solution, or would it create further problems? The following research questions were developed for the study:

1. Is shorthand a skill that should continue to be taught at the high school level?
2. Does gender of the high school business education teacher make a difference in the type of shorthand taught?
3. Does age of the high school business education teacher make a difference in whether shorthand is taught?
4. Is the length of time required to learn Gregg Shorthand one of the reasons shorthand is being dropped from some high school curricula?
5. Does the size of organization effect whether shorthand is used by executives in industry?
6. Does gender have an effect on the frequency which industry executives dictate to their secretaries?
7. Does secretarial shorthand skills effect the efficiency of an office?
8. Does the size of an organization effect the use of dictation and shorthand?
9. Do professional organizations usually specify shorthand skills as a part of their secretarial job announcements?
10. Is the time invested in learning some type of shorthand worthwhile for secretaries?

Research Methods and Procedures

Population and Sample

The population for the study consisted of the North Carolina public high school business education teachers, and secretaries and executives employed in the Research Triangle Park area of North Carolina. A list of the business education teachers in North Carolina was obtained from the State Department of Public Instruction. This list served as the frame for the study with regard to the business education teachers. A sample of 100 business education teachers was selected at random from the identified list. The businesses and organizations within the Research Triangle Park were identified though the use of a directory for the businesses in the Park. This directory served as the frame for the population of businesses from which a sample of executives (n = 100) and secretaries (n = 100) were randomly selected. The businesses were divided into two categories, "Research and Development Organizations," and "Commercial, Service, and Professional Organizations."

Instrumentation

The data collection instrument were researcher developed. Content validity was assessed by a panel of experts in business education. The instrument was field tested to determine clarity.

Data Collection

Three data collection instruments were developed, one for each of the research sample groups. The instruments, along with cover letters, and stamped, self-addressed envelopes were distributed by mail. The cover letter explained the purpose of the study and asked for assistance in supplying the requested information. A follow-up mailing was made to non-respondents two weeks after the initial mailing. Telephone calls were made to those individuals who had not responded one week after the deadline established by the second mailing.

A total of 57 useable responses was made by the teachers to the two mailings and seven additional responses were obtained by telephone calls, for a total return rate of 64% for the teachers. Fifty-eight secretaries responded to the mailings and 14 additional responses were obtained by telephone calls. This reflected a 72% return rate for the secretaries. A total of 57 executives returned completed instruments that were usable in study as a result of the two mailings. Nine

additional instruments were completed as a result of the telephone calls, giving a total response rate of 66% from the executives.

Analysis of Data

The data for this study were analyzed by descriptive statistical procedures. Frequencies, means, and percentages were reported.

Findings

Research question one of the study ask, "Is shorthand a skill which should continue to be taught at the high school level?" The majority of each group of respondents felt that shorthand was a necessary skill and should be taught at the high school level. A total of 51.5% ($\underline{n}$ = 34) disagreed with the statement, "shorthand will totally be replaced in the offices by high tech." Sixty-one, 84.7%, of the secretaries agreed with the statement, "My time invested in learning shorthand is time well spent." Sixty-three, 98.4%, of the teachers indicated they either agreed or strongly agreed with the statement, "Some form of shorthand should continue to be taught at the high school level." It was also apparent that the majority of the executives (53.0%) and secretaries (78.1%) felt salaries would be higher for secretaries who had shorthand skills.

Of the teachers responding the survey instruments, 59.4% (n = 38) taught, at some point, some form of shorthand. Of this group, 20 or 52.6% have changed from a symbolic system of shorthand to an alphabetic system. As reflected in Table 1, a higher percentage of female teachers who teach shorthand has switched to an alphabetic system. Only two of the 10 male teachers (20%) have switched to the alphabetic system while 18 of the 28 female teachers (64.29%) have made the switch. It is also of interest to note that 40.63% (n = 26) of the teachers indicated that they no longer teach either type of shorthand. The data in Table 1 also reflects that 29.69% ($\underline{n}$ = 19) of the respondents were male and 70.31% ($\underline{n}$ = 45) were female. Research question two ask, "Does gender of the high school business education teacher make a difference in the type of shorthand taught?" Based on the data from Table 1, it appears that gender does affect the type of shorthand taught. A higher percentage of males teach symbolic shorthand then do females and a higher percentage of females teach an alphabetic system of shorthand then do males.

Table 1: Shorthand Teaching Assignment According to Gender

Gender	Respondents		Respondents Who Teach Shorthand		Respondents Who Teach An Alphabetic System	
	f	%	f	%	f	%
Male	19	29.69	10	52.63	2	20.00
Female	45	70.31	28	62.22	18	64.29
Total	64	100.00	38	59.38	20	52.63

Research question three ask, "Does age of the high school business education teacher make a difference in whether shorthand is taught?" Based on the data presented in Table 2, it does not appear that age has much of an impact on the type of shorthand taught by the high school business education

teachers. The average age of those teachers who felt shorthand should be taught was the same as for the total sample of teachers responding to the survey.

Research question four was stated as "Is the length of time required to learn Gregg Shorthand one of the reasons shorthand is being dropped from some high school curricula?" The data received from this study indicates that the time it takes to learn the Gregg Shorthand system is a major reason why the course is being dropped from the curricula at many schools. Nearly 83% (n = 53) of the teachers responded to the survey indicated that they either agreed or strongly agreed that the length of time it takes to learn the Gregg Shorthand system is a reason it is being dropped from the curricular at many schools.

Table 2: Average Age of Business Education Teachers and Their Opinions About Whether Shorthand Should be Taught at the High School Level

	Mean Age
All respondents	40.3
All respondent teaching shorthand	42.0
All respondents who feel shorthand should be taught at the high school level	40.3

Research question five, "Does the size of organization effect whether shorthand is used by executives in industry" was addressed by referring to the size of the organization as the number of individuals employed. The average number of employees in the organizations surveyed was 514 with a range of 13 - 8,500. Of the 66 who responded, 86.4% dictate to their secretaries every week with the largest percentage, 36.8%, dictating an average of three times per week. Also, of the 86.4%

who dictated every week, 33.3% dictate an average of eight times per week, 19.3% dictate an average of eighteen times per week, and 10.5% dictate twenty-five or more times per week. It should also be noted that out of the organizations larger than the average size of 514 employees, 100% (10 out of 10) used dictation during each week, while 84% of the organizations smaller than average (47 out of 56) used dictation during each week. This stresses or adds support to the fact that no matter how small or large the company, there continues to be the need for dictation and shorthand.

In response to research question six, "Does gender have an effect on the frequency which industry executives dictate to their secretaries," it appears that male executives dictate more than female executives. This could be due to the fact that there are more male respondents in senior positions. From the male respondents who use dictation skills, 36.6% (n = 15) give dictation an average of three times per week and 26.8% (n = 11) give dictation an average of eight times per week. The largest concentration of female executives (50%, n = 8) give dictation an average of eight times per week and 37.5% (n = 6) give dictation an average of three times per week. It was noted that 14.6% (n = 6) of the males who give dictation to their secretaries dictate more than 25 times per week. No female executive used dictation 25 or more times per week.

Research question seven, "Does secretarial shorthand skills effect the efficiency of an office?" was addressed by obtaining data from the industry executives. Evidence showed that the majority (62.2%) of the respondents (n = 66) felt the efficiency of their offices would be better if their secretaries had shorthand skills.

In response to research question eight, "Does the size of an organization effect the use of dictation and shorthand?" it appears that organizational size does effect the use of dictation and shorthand used in the workplace. The average size of the organizations in this study for obtaining information from the secretaries was 475 employees. Eleven of the organizations were larger than the average size and 72.7% of secretaries responding to the research survey from those organizations indicated that they used dictation and shorthand skills in their workplaces. Sixty-one organizations used in the study had fewer then 475 employers. In these smaller organizations it was found that 86.9% of the secretaries who responded to the research survey reported using dictation

and shorthand skills in their work. It was also of interest to discover that while only 45.5% of the secretaries from the larger companies indicated that they used their dictation shorthand skills eight or more times per week in their employment, 70.5% of the secretaries from the smaller companies indicated that they used their dictation and shorthand skills eight or more times per week. This difference might have been the result of the fact that secretaries from the larger companies reported that they were responsible for preparing correspondence for only one person while 22.9% of the secretaries from the larger companies prepared correspondence for three or more people.

With regard to research question nine, "Does the size of organizations effect whether they specify shorthand skills as a part of their secretarial job announcements?", it was discovered that 77.8% (n = 49) of the secretaries from companies with fewer then 475 employees reported that their companies did require the ability to take shorthand as a part of their written secretarial job descriptions. However, of the 11 secretaries who responded to the research questionnaire they were employed at organizations with more then 475 employees, approximately 45% indicated that still used shorthand and that their bosses wanted to require it in their job descriptions but had such a difficult time in the past finding someone with good shorthand skills that they ad opted to delete the requirement for shorthand skills in their position descriptions.

Research question ten asked, "Is the time invested in learning some type of shorthand worthwhile for secretaries?" Considering the data received from the secretaries who responded to the research survey, the time spent learning some type of shorthand is time well spent. Approximately 85% of the respondents indicated that they felt the time it would take to learn some type of shorthand skills would be time well spent.

Conclusions

The following conclusions were formulated as a result of the findings of this study:

1. Shorthand is a skill that should continue to be taught at the high school level.
2. Female business education teachers prefer teaching an alphabetic shorthand system over a symbolic system such as the Gregg Shorthand system.

3. The age of business education teachers does not impact whether the teachers teach shorthand as a part of their high school curricula.
4. The vast majority of the business education teachers in North Carolina perceive that it takes too long to learn the Gregg Shorthand. Therefore, they are electing not to teach symbolic shorthand courses as a part of their high school curricula.
5. Size of organizations does not effect whether shorthand is used by executives in industry. No matter how small or large the company, there continues to be the need for dictation and shorthand.
6. Male executives tend to dictate more than female executives. This could be due to the fact that there are more male respondents in senior positions.
7. Executives perceive that the efficiency of their offices would be better if their secretaries had shorthand skills.
8. Secretaries who are employed in smaller companies tend to use their dictation and shorthand skills more frequently then do secretaries in larger companies. The secretaries in smaller companies are also more likely to be responsible for preparing correspondence for more than one executive then are secretaries of larger companies.
9. Shorthand skills are more likely to be identified as a requirement in the position descriptions of secretaries of smaller companies then they are of secretaries of larger companies.
10. The vast majority of secretaries agree that the time spent learning shorthand skills is time well spent.

Implications and Recommendations

The following implications and recommendations have been drawn based on the findings and conclusions of this study:

1. Business education teachers in North Carolina should teach some form of alphabetic shorthand as a part of their curricula. This recommendation is supported by the fact that company executives feel that the efficiency of their offices is increased by their secretaries having

shorthand skills and by the fact that the vast majority of secretaries feel that the time it takes to learn shorthand skills is time well spent.

2. Colleges and universities in North Carolina should include some form of alphabetic shorthand in their business education preservice programs.

3. Symbolic shorthand systems such as the Gregg Shorthand system should be deleted from the secondary and post-secondary business education curricula in North Carolina.

References

Crews, J. W. & Dickerson, Jr. Z. S. (eds.) (1977). Curriculum development in education for business. National Business Education Yearbook, No. 15. Reston, VA: National business Education Association.

Culver, G. (1982). Shorthand and the office of the future. Business Education World, 53 (2).

Fulton, P. & Hanks, J. (1985). Procedures for the professional secretary. Cincinnati, OH: Southwestern Publishing Company.

Johnson, J. (1987). Winds of change for business education. Vocational Education Journal, 62 (November/December).

Knosp, D. S. & Holmquist, D. (1986). Shorthand -- to be or not to be. Business Education Forum, 40 (6).

Laurie, C. T. (1981). Is shorthand marking time? Journal of Business Education.

Lundgren, T. D. & Lundgren, C. A. (1984) Occupational opportunities in the new business education. Business Education Forum, 39 (10).

Morrison, P. (1985). Integrating information processing into shorthand/transcription/machine transcription. Business Education Forum, 39 (60).

Schindler, I. (1984). Is shorthand dead, terminally ill, or just ailing? Business Education Forum, 38 (8).

Tilton, R., Jackson, J. H., & Rigby, S. (1991). The electronic office: Procedures and administration. Cincinnati, OH: South-Western Publishing Company.

Attitudes of North Carolina Principals Toward Secondary Technology Education Programs

Larry R. Jewell

Associate Professor

Department of Occupational Education

North Carolina State University

Introduction

Many changes have occurred in public education and many different programs in the public schools have been reviewed and evaluated as school reform efforts have been developed (Tyler, 1987). However, many vocational education programs have remained the same for many years and the courses taught have failed to keep up with technology and new developments (National Research Council, 1988). All vocational education programs must stay in stride with advancements in technology to provide students with a quality education. Frantz, Strickland, and Elson (1988) and the National Research Council (1988) recommended that vocational education teachers constantly upgrade their curricula and programs, as well as implement more science and math instruction in vocational education courses. Only 18% of high school vocational education courses teach math, although students often learn math and other academic subjects in practical situations (Sperling, 1989).

Changes in technology education will require the approval and support of school administrators since they have authority and influence in programs and curricula at the school and school system levels. Thompson (1986) reported in an Arkansas study that administrators' opinions are very important since administrators' decisions often drastically affect program operations and directions. The Council of Chief State School Officers (CCSSO) made numerous recommendations for changes in the Carl Perkins Vocational Education Act when Congress began debate on the reauthorization of the Act in March 1989 (Walker, 1989). The recommendations included requiring secondary level vocational programs to place greater emphasis on academic preparation, development of closer relationships with community colleges, and implementing more intensive efforts to hold school administrators "accountable" for the success of their students (Walker, 1989). The CCSSO and the American Association of School Administrators (AASA) also recommended that vocational programs not be judged by a single criterion, such as a vocational program's job placement rate, but according to a mixture of other factors (Walker, 1989).

If school administrators are to be held more accountable for the success of students and consequently of the secondary vocational programs as Tyler (1987) indicated and the Council of Chief State School Officers recommended, it is important to know and understand how school administrators perceive technology education programs. Technology education programs are different from school to school and are administered differently from school system to school system. A portion of the differences may exist because of the relationships between school administrators and technology education teachers and the administrators' perceptions of the technology education programs. A 1979 national study included in its findings that a significant number of school administrators do not support programs providing high school students opportunities to develop salable job skills through vocational programs, and these administrators will determine whether or not vocational education is available in the secondary schools (United States Department of Education, 1979).

Sperling (1989) stated that vocational courses should prepare students for many different jobs in an occupational area, rather than one specific job. He also stated that in schools ranking at the bottom in terms of academic achievement and poverty, students had less access to vocational courses, less access to advanced-level vocational courses, and less access to supervised work-study programs than students in other schools. To address the enrollment issues, vocational education may need to move away from multi-course programs and multi-year, multi-period courses to shorter and more flexible offerings (National Research Council, 1988).

Ninety-seven percent of all high school students take at least one vocational course and 75% of all vocational courses are being taken by college bound students (Sperling, 1989). The National Assessment of Vocational Education reported that administrators may be at least partially responsible for students failing to enroll in vocational courses because they once allowed vocational teachers to make presentations in classes and assemblies to recruit students, and now administrators restrict those activities (National Assessment of Vocational Education, 1988).

Significance of the Study

Administrators are the instructional leaders in their schools and/or school systems and their leadership in curriculum and instructional reforms are important. Administrators with negative attitudes toward vocational education and/or reform recommendations will probably not be successful in implementing these initiatives in their schools or school systems. This study provides vocational educators with information that can be analyzed to overcome or improve situations that could have a negative effect on technology education. Strategies may also be developed to enhance technology education programs so they can continue to be important and viable components of public education.

Statement of the Problem

The purpose of the study was to determine building level administrators' attitudes toward vocational programs in technology education at their schools. More specifically, the objective of this study was to determine the attitudes of North Carolina secondary school principals concerning issues related to their technology education programs.

Research Methods and Procedures

Population

The population for the study included the building level administrators (principals) in North Carolina who had Technology Education as a part of their school curricula offerings during the 1992-93 academic year. The population was identified by first identifying the schools that offered technology education (N = 369) and than identifying the principals of those schools. A random sample (n = 188) was drawn from the population using a computer generated random selection process.

Instrumentation

The data collection instrument for the study was researcher developed and addressed the administrators' attitudes toward technology education course offerings and programs. Content validity was assessed by a committee of experts in technology education. The

instrument was field tested to determine clarity. The coefficient of the stability was found to be .96 for the instrument.

Data Collection

The instrument, along with a cover letter, was mailed on June 10, 1993. The members of the sample were asked to return the completed survey by June 30,1993. The vocational directors from the local education agencies who had principals selected in the research sample were also sent a letter on June 10, 1993, and asked to contact their principals and urge them to complete and return the survey instruments they had received. A follow-up mailing was sent to those members of the sample who failed to respond to the first mailing on June 30, 1993. Those persons receiving a follow-up mailing were asked to return the completed survey by July 9, 1993. The surveys returned by the late respondents (follow-up mailing) were kept separate from those received after the first mailing.

A total of 76 responses was received from the principals with technology education programs after the first mailing and 36 additional responses were received from the non-responding principals after receiving the follow-up mailing. Responses received from the follow-up mailing were statistically compared on all variables with the initial responses using Hotelling-Lawley Trace statistic which is the appropriate multivariate analyses of variance (MANOVA) to use when using two independent samples and no significant differences were found ($F = 0.606$, $p = 0.4543$). According to Miller and Smith (1983), late responses have been found to be very similar to non respondents. Therefore, since no statistically significant difference between early and late respondents were found, the data sets were combined for statistical purposes and were assumed to be representative of the population of principals who had technology education programs at their schools during the 1992-93 academic year. The combined total of usable responses from the sample was 112 or 60%.

Analysis of Data

The data for this study were analyzed by descriptive and inferential statistical procedures. Descriptive statistics were used for all items in the study and frequencies, means,

standard deviations, and percentages were reported. Descriptive statistics were used to answer the research objective.

Findings

Demographic Data for Principals of Technology Education Programs

The principals of the technology education programs ranged between 32 and 59 years of age and averaged 47.20 years old. The administrators' tenure as principals ranged from one to 29 years with a mean of 11.34 years. Approximately 54% (n = 58) of the administrators took at least one technology education or industrial arts education course in high school but only 5.56% (n = 6) of those taking these courses indicated they had received four or more credits in either technology education or industrial arts education. Approximately 45% (n = 48) of the principals reported they took at least one vocational education course other than technology education or industrial arts education during high school. Administrators who had been vocational education teachers in areas other than technology education or industrial arts education accounted for 7.14% (n = 8) of the sample and 7.14% (n = 8) of the principals were also former technology education or industrial arts education teachers. Approximately seven percent (n = 8) of the administrators had attended at least one State TSA Convention during the time period from 1987-1992. Approximately 78% (n = 97) of the principals indicated they would attend state and national activities if they were invited by their technology education teachers to do so. Approximately 72% (n = 76) of the principals classified their schools as being in a rural setting, however, 25% (n = 28) indicated that 1000 or more students were enrolled at their schools.

Attitudes of Building Level Administrators Concerning Technology Education Programs and Course Offerings

The research objective of the study was to determine the attitudes of building level administrators in North Carolina concerning their technology education programs and course offerings. The administrators were asked to rate each of the statements on the data collection instrument according to the following scale: 1 = Strongly Disagree (Respondent disagreed with the statement without exception); 2 = Disagree (Respondent disagreed with the statement, but

was not 100% opposed to the statement); 3 = Slightly Disagree (Respondent disagreed with some elements of the statement, but not the whole statement); 4 = Slightly Agree (Respondent agreed with some elements of the statement, but not the whole statement); 5 = Agree (Respondent agreed with the statement, but not 100% supportive of the statement); or 6 = Strongly Agree (Respondent agreed with the statement without exception).

Interval data were collected on each of the dependent variables in this study. The intervals for data collection and statistical analysis were those defined in the previous paragraph. However, for practical interpretation of the data, the mid-points between defined intervals were used. For example, a rating of 3.50 to 4.49 was interpreted as slightly agree.

The research objective was addressed by categorizing the 72 statements used to obtain the attitudinal data into 8 categories: Curriculum Issues; Program Accountability Issues; Descriptive Program Issues; Program Image; Technical Content Literacy; Academic Integration; Vocational Student Organization (TSA); and Teacher Performance. Descriptive statistics, means, standard deviations, and frequencies were used to describe the attitudes registered by the principals for each of the statements.

Table 1 contains the mean ratings of the attitudes of the building level administrators (principals) toward the statements designed to address technology education curriculum issues. The principals indicated that Fundamentals of Technology courses (M = 5.20, SD = 0.80) were the most appropriate technology courses to be included in a contemporary high school curriculum. However, as indicated in Table 1, the principals agreed that all the technology education course offerings currently being offered in the public schools of North Carolina should be included in a contemporary high school curriculum. The administrators indicated they slightly disagreed (M = 3.05, SD = 1.56) with the statement "technology education teachers conducting programs which focus on woodworking and metal working is an out-of-date concept."

The principals also indicated they agreed that the high school technology education curriculum should provide students with a mix of occupational specific skills which are needed to get good jobs or to pursue further training at the post-secondary level (M = 5.22, SD = 0.79) and that "the high school academic and technology education curricula should be integrated so

students are well equipped with fundamental academic skills which are enhanced through applied activities in technology education courses" (M = 5.20, SD = 0.99). The principals slightly agreed (M = 4.20, SD = 1.45) with the recommendation of requiring all students to complete at least one technology education course in order to meet graduation requirements.

Table 1: School Administrator's Attitudes Toward Statements Concerning Technology Education Curriculum Issues

Statement	n	Ma	SD
The technology education curriculum should be revised to provide a mix of occupational specific skills needed to get jobs or pursue training at the post-secondary level.	108	5.22	0.79
Academic and technology education curricula should be integrated so students are well equipped with fundamental academic skills which are enhanced through applied activities in technology education courses.	112	5.20	0.99
Articulation of technology education training between secondary and post-secondary levels should be increased.	112	5.25	0.81
Technology education teachers conducting programs which focus on wood and metal working is an out-of-date concept.	112	3.05	1.56
The following types of technology education course offerings should be included in a contemporary high school curriculum:			
Communications Systems	110	5.15	0.91
Construction Systems	110	4.91	0.82
Manufacturing Systems	110	4.93	0.81
Transportation Systems	110	4.84	0.85
Fundamentals of Technology	110	5.20	0.80
Technology Studies	110	4.98	0.93
All students should complete at least one technology education course in order to meet graduation requirements.	112	4.20	1.45
More students should be encouraged to enroll in programs requiring work experience while attending high school; for example, Cooperative Work Experience programs.	112	3.61	1.45
Technology education courses should be moved from high schools to community colleges.	112	2.32	1.30
If a high school offers a course in technology education, such as Principles of Technology, it should be taught by a certified technology education teacher.	112	4.64	1.31
Technology education programs should be fully articulated with community colleges through TECH-PREP agreements.	112	5.04	0.91

a. Means were based on responses to a six-point scale where 1=Strongly Disagree, 2=Disagree, 3=Slightly Disagree, 4=Slightly Agree, 5=Agree, and 6=Strongly Agree

The principals only slightly agreed (M = 3.61, SD = 1.45) that students should be encouraged to enroll in programs requiring work experience, like Cooperative Work Experience programs. However, the principals also indicated they agreed (M = 4.64, SD = 1.31) that technology education courses should be taught by certified technology education teachers.

The principals reported they agreed (M = 5.25, SD = 0.81) that articulation of technology education training between secondary and post-secondary institutions should be increased and they agreed (M = 5.04, SD = 0.91) that technology education programs should be fully articulated with community college programs through TECH-PREP agreements. However, the principals disagreed (M = 2.32, SD = 1.30) with the statement "technology education courses should be moved from high schools to community colleges."

As reported in Table 2, principals agree that schools with technology education programs should have active advisory councils (M = 4.55, SD = 1.17), that employment of high school graduates in jobs that use the skills acquired in high school technology education courses should be increased for program accountability (M = 4.76, SD = 0.97), and that one objective of technology education programs should be to prepare high school students for gainful employment in technologically related occupations (M = 4.88, SD = 0.93). The administrators also indicated they only slightly agreed (M = 3.59, SD = 1.33) with the statement, "the rate of student placement in technologically related occupations should not be a major factor in continuation of technology education programs."

The principals slightly disagreed that the primary focus of secondary technology education programs should be for occupational training (M = 3.23, SD = 1.23) and they slightly disagreed that technology education programs should consist of individual courses rather than multi-course, multi-year programs (M = 3.47, SD = 1.42). The principals also indicated they only slightly agreed (M = 4.34, SD = 1.10) that VoCATS would be an effective vehicle for assessing the vocational competence of students enrolled in technology education courses.

The administrators indicated they disagreed (M = 2.38, SD = 0.99) with the opinion that funds currently being spent on technology education programs would be better spent on other vocational and/or academic programs. Though the principals implied that funding for technology education programs should continue, they only slightly agreed (M = 3.71, SD = 1.42) that school administrators should be held accountable for the success of technology education students and consequently, technology education programs. They agreed (M =4.71, SD = 0.93) with the

statement "school administrators should have an in-depth knowledge and understanding of technology education programs."

Table 3 presents the attitudes of the principals toward selected statements concerning descriptive issues about technology education programs. The principals agreed (M = 4.91, SD = 0.82) that when setting the future course for technology education, educational leaders should consider employment opportunities in the service or business sectors related to technology.

The principals disagreed (M = 2.43, SD = 1.31) with the statement that "only students who wish to pursue a career/job in a technological field should enroll in technology education courses." The principals also slightly disagreed (M = 2.80, SD = 1.39) with the statement that technology education teachers should have smaller teaching loads than other teachers because of extra duties with TSA and laboratory management. They also slightly disagreed (M = 2.75, SD = 1.46) with the concept that all technology education teachers should be employed twelve months per year.

Table 2: Administrator's Attitudes Toward Technology Education Program Accountability Issues

Statement	n	Ma	SD
Employment of graduates in jobs that use the skills acquired in technology education courses should be increased for program accountability.	108	4.76	0.97
Technology education programs should consist of individual courses rather than multi-course, multi-year (scope and sequence) programs.	110	3.47	1.42
School administrators should have an in-depth knowledge and understanding of technology education programs.	110	4.71	0.93
One objective of technology education should be to prepare high school students for gainful employment in technologically related occupations.	112	4.88	0.93
Schools with technology education should have advisory councils.	112	4.55	1.17
Focus of technology education should be occupational training.	112	3.23	1.23
School administrators should be held accountable for the success of technology education students and programs.	112	3.71	1.42
Student placement in technologically related jobs should not be a factor continuation of technology education programs.	108	3.59	1.33
Funds currently spent on technology education programs would be better spent on other vocational and/or academic programs.	110	2.38	0.99
When fully implemented, VoCATS (Vocational Competency Achievement Tracking System) will effectively assess the vocational competence of students in technology education.	112	4.34	1.10

a. Means were based on responses to a six-point scale where 1=Strongly Disagree, 2=Disagree, 3=Slightly Disagree, 4=Slightly Agree, 5=Agree, and 6=Strongly Agree

The administrators slightly agreed (M = 4.44, SD = 1.05) that provisions should be made so that technology education courses receive recognition to meet admission requirements for the University of North Carolina system. They agreed (M = 5.19, SD = 0.80) with the statement that technology education courses are appropriate for college bound students.

Table 4 displays the attitudes of the principals toward statements concerning the image of technology education programs. The principals slightly agreed (M = 4.41, SD = 1.15) with the statement that technology education is an exemplary model of the educational reform movement. They also disagreed with the statements "technology education courses are not important components of the high school curriculum, " (M = 1.86, SD = 1.11) "instruction in technology education does not support or enhance the goals of general secondary education," (M = 2.20, SD = 1.12) and "the benefits students derive from technology education are no longer important" (M = 1.62, SD = 1.02).

Table 3: School Administrator's Attitudes Toward Statements Concerning Descriptive Issues About Technology Education Programs

Statement	n	Ma	SD
In planning the future for technology education, leaders should consider employment opportunities in the service or business sectors related to technology.	110	4.91	0.82
Technology teachers should have smaller teaching loads than other teachers because of extra duties with TSA and with laboratory management.	112	2.80	1.39
Only students who wish to pursue a career/job in a technological field should enroll in technology education courses.	112	2.43	1.31
All technology education teachers should be employed twelve months per year.	110	2.75	1.46
Technology education courses are appropriate for college bound students.	108	5.19	0.80
Provisions should be made so that technology education courses receive recognition to meet admission requirements for the University of North Carolina system.	108	4.44	1.05

a. Means were based on responses to a six-point scale where 1=Strongly Disagree, 2=Disagree, 3=Slightly Disagree, 4=Slightly Agree, 5=Agree, and 6=Strongly Agree

The principals indicated they strongly disagreed (M = 1.38, SD = 0.95) with the statement "technology education is no longer needed in the public schools." They also indicated they slightly disagreed (M = 3.00, SD = 1.28) with the statement, "the curriculum in technology education has kept pace with the changes in technology."

The administrators indicated they agreed (M = 4.54, SD = 0.85) with the statement "technology education provides motivation for students to continue their education beyond high school." They also indicated they slightly disagreed (M = 2.73, SD = 1.35) with the opinion that students who enroll in technology education courses compromise their social status among students not enrolled in technological education courses.

The findings of the study indicated that the principals slightly agreed (M = 4.16, SD = 1.34) that the majority of the people in their communities regarded technology education as an important part of the high school program. They also slightly agreed (M = 4.16, SD = 1.34) with the statement "technology education courses should be credited toward satisfying high school graduation requirements for science courses."

Table 4: School Administrator's Attitudes Regarding the Image of Technology Education Programs

Statement	n	Ma	SD
Technology education is an exemplary model of the educational reform movement.	108	4.41	1.15
Technology education is no longer needed in the public schools.	110	1.38	0.95
Instruction in technology education does not support or enhance the goals of general secondary education.	108	2.20	1.12
Technology education courses should be credited toward satisfying high school graduation requirements for science courses.	110	4.16	1.34
The majority of the people in my community regard technology education as an important part of the high school program.	110	4.16	1.34
Benefits derived from technology education are no longer important.	110	1.62	1.02
The name change from industrial arts to technology education provided the program with a contemporary forward-looking image.	110	4.20	1.28
The curriculum in technology education has kept pace with the changes in technology.	108	3.00	1.28
Technology education courses are not important components of the high school curriculum.	112	1.86	1.11
Students who enroll in technology education courses compromise their social status among other students.	112	2.73	1.35
Technology education motivates students to continue their education.	112	4.54	0.85

a. Means were based on responses to a six-point scale where 1=Strongly Disagree, 2=Disagree, 3=Slightly Disagree, 4=Slightly Agree, 5=Agree, and 6=Strongly Agree

Table 5 displays the attitudes expressed by the school principals toward technological literacy. From reviewing the different mean scores, it is apparent they tend to agree with the need to increase technical literacy. This belief is exhibited by their agreeing (M = 4.84, SD = 1.02) that teachers in all grade levels and subject areas should be encouraged to incorporate materials about the economic aspects of technology. They also indicated they agreed (M = 5.30,

SD = 0.85) with the statement, "beginning in kindergarten and continuing through the twelfth grade, all students should receive some systematic instruction about technology to increase technological literacy of US citizens. The principals also indicated that it was not unreasonable to add a technological literacy emphasis as a part of social study, science, math, reading, and English courses.

Table 5: School Administrator's Attitudes Toward Statements Concerning Technical Literacy

Statement	n	Ma	SD
Student from kindergarten through the twelfth grade, should receive systematic instruction to increase technological literacy.	112	5.30	0.85
Schools are expected to do too much already. Adding an technological literacy emphasis is unreasonable.	112	2.45	1.29
State education leaders and administrators should develop and implement plans to foster instruction about technology.	112	4.91	0.79
Teachers in all grade levels and subject areas should be encouraged to incorporate materials about the economic aspects of technology.	112	4.84	1.02
State and local education leaders and administrators should participate in professional development activities to integrate technology into academic curricula from kindergarten through the twelfth grade.	110	4.85	1.09
Representatives of business and industry, particularly at local and state levels, should work with school officials to implement efforts to bring more technology into all courses in the high school curriculum.	112	4.77	0.97
Science and technology teachers should jointly examine existing curricula and instructional materials to identify opportunities to incorporate more technological subject matter into science instruction.	112	5.12	0.78
Instructional materials in elementary and secondary science courses should provide students with an increased understanding of technology.	110	5.11	0.81

a. Means were based on responses to a six-point scale where 1=Strongly Disagree, 2=Disagree, 3=Slightly Disagree, 4=Slightly Agree, 5=Agree, and 6=Strongly Agree

On the basis of the findings presented in Table 6, it appears that public school principals in North Carolina agree (M = 4.71, SD = 0.96) that technology education courses provide an effective vehicle for integrating academic and vocational education skills and they agree (M = 4.93, SD =0.87) that technology education courses provide an effective vehicle for developing computer literacy competencies. They also agree that ongoing efforts should be expanded and accelerated to upgrade the scientific content of technology education courses (M = 5.11, SD = 0.86) and that a substantial amount of applied science principles and concepts should be infused into the high school technology education curricula (M = 4.91, SD = 0.81). The principals also

indicated they slightly disagreed (M = 2.62, SD = 1.27) with the statement "there should be less emphasis on the teaching of technical content/skill courses to high school students."

Table 6: School Administrator's Attitudes Toward Statements Concerning Academic Integration in Technology Education Programs and Course Offerings

Statement	n	Ma	SD
Technology teachers should be involved in selecting instructional materials for math and science courses and math and science teachers should be involved in selecting instructional materials for technology education.	112	4.57	0.91
Ongoing efforts should be expanded and accelerated to upgrade the scientific content of technology courses.	112	5.11	0.86
Teacher education programs in technology education should continue to stress applied learning, but should strengthen instruction in science.	112	4.70	0.95
A substantial amount of applied science principles and concepts should be infused into the high school technology education curricula.	112	4.91	0.81
The emphasis in secondary schools should be on developing students' basic academic skills; therefore, there should be less emphasis on the teaching of technical content/skill courses.	112	2.62	1.27
Technology education courses provide an effective vehicle for the integration of academic and vocational education skills.	112	4.71	0.96
Technology education courses provide an effective vehicle for developing computer literacy competencies.	112	4.93	0.87
The technology education program needs to more effectively meet the needs of special population groups.	112	4.59	1.05

a. Means were based on responses to a six-point scale where 1=Strongly Disagree, 2=Disagree, 3=Slightly Disagree, 4=Slightly Agree, 5=Agree, and 6=Strongly Agree

Principals in North Carolina public schools appear to be supportive of the TSA component of their technology education programs as indicated by reviewing the findings displayed in Table 7. The principals slightly disagreed (M= 2.57, SD = 1.38) with the statement, "vocational student organizations such as the TSA are out dated ideas whose time have passed," and slightly agreed (M= 4.11, SD = 1.27) with the statement, "vocational student organizations, like TSA, should be part of every high school's co-curricular activities. Further, the principals indicated they slightly agreed with the statement, "all schools with technology education programs should have TSA chapters" (M = 3.82, SD = 1.36). However, they disagreed (M = 2.41, SD = 1.15) with the statement, "the primary purpose of the TSA is to develop leadership among technology education students."

Table 7: School Administrator's Attitudes Toward the Vocational Student Organization (TSA) Component of the Technology Education Program

Statement	n	Ma	SD
All schools with technology education programs should have Technology Student Association (TSA) chapters.	112	3.82	1.36
The TSA should revise the nature, focus, and awards structure of its contests and activities to open new categories of competition.	110	3.82	1.36
TSA should encourage membership by students unable or unwilling to complete a 4-year program of studies in technology education.	108	4.33	1.24
Vocational student organizations such as TSA are out dated concepts.	112	2.57	1.13
Technology educators are unduly driven by TSA activities and place little emphasis on instruction in technical content or curriculum reform.	110	2.87	1.13
A substantial amount of marketing and distribution techniques should be infused into high school technology education courses.	110	4.15	1.04
The TSA is the primary reason students enroll in technology education.	112	2.41	1.15
The primary purpose of the TSA is to develop leadership among technology education students.	112	3.84	1.20
Vocational student organizations, like TSA, should be part of every high school's intra-curricular activities.	112	4.12	1.27
Vocational student organizations, like TSA, should be part of every high school's co-curricular activities.	112	4.11	1.27

a. Means were based on responses to a six-point scale where 1=Strongly Disagree, 2=Disagree, 3=Slightly Disagree, 4=Slightly Agree, 5=Agree, and 6=Strongly Agree

As indicated in Table 8, the North Carolina public school principals agreed that their technology education teachers were doing an above average to superior job in each of the eight areas identified by the State's Teacher Performance Appraisal System. However, the principals indicated they only slightly agreed ($\underline{M}$ = 4.44, $\underline{SD}$ = 1.27) that their technology education teachers were performing at an above average to superior level in the area of housekeeping and classroom/laboratory organization and management.

Table 8: Administrator's Attitudes Toward the Teaching Performance of Technology Education Teachers

Statement	n	Ma	SD
The technology teacher(s) at my school does an above average to superior job:			
Managing his/her instructional time.	112	4.62	1.12
Managing the behavior of his/her students.	112	4.71	1.21
With his/her instructional presentations.	112	4.71	1.10
With his/her instructional monitoring of student performance.	112	4.71	1.10
Providing his/her students with instructional feedback.	112	4.79	1.09
With housekeeping and classroom/laboratory management.	112	4.44	1.27
Facilitating instruction.	112	4.52	1.15
Communicating within the educational environment.	112	4.71	1.17
Performing non-instructional duties.	112	4.82	1.19

a. Means were based on responses to a six-point scale where 1=Strongly Disagree, 2=Disagree, 3=Slightly Disagree, 4=Slightly Agree, 5=Agree, and 6=Strongly Agree

Conclusions

The following conclusions were formulated as a result of the findings of this study:

1. In general, principals were very supportive of the technology education programs being offered in the public schools of North Carolina.
2. Technology education courses are viewed as important components of the public high school curriculum and there is a perceived need for technology programs in the schools.
3. The benefits students derive from technology education are still deemed important by public school principals.
4. Technology education courses provide opportunities for developing computer literacy competencies.
5. The Technology Student Association (TSA) is not viewed by administrators as a vehicle for recruiting students for technology education programs.
6. There appears to be little support on behalf of the public school principals to offer extended employment contracts to technology education teachers.
7. Technology education teachers are doing an above average to superior job in managing instructional time, managing student behavior, making instructional presentations, monitoring student performance, providing students with instructional feedback, facilitating instruction, housekeeping and classroom/laboratory management, communicating within the educational environment, and performing non-instructional duties.
8. Funds being spent on technology education programs **would not** be better spent on other vocational and/or academic programs.
9. Technology education curricula should be integrated with the high school academic curricula so graduates will be well equipped with fundamental academic skills which have been enhanced through applied activities in the technology education courses.
10. The articulation of technology education training between secondary and post-secondary institutions should be increased and secondary technology education programs should be fully articulated with community college programs through TECH-PREP agreements.

11. Technology education courses should be taught by fully certified technology education teachers.
12. Technology education courses should remain at the secondary level and **not** be moved to the community colleges.
13. Schools with programs in technology education should have active advisory councils for their programs. Representatives from business should also be used to help school officials identify ways of infusing more instruction about technology and technological advances into public school curricula.
14. Principals tend to be willing to substitute technology education courses for science courses to fulfill high school graduation requirements for science.

Implications and Recommendations

The following implications and recommendations have been drawn based of the findings and conclusions of this study:

1. Technology education curricula should be integrated with the high school academic curricula.
2. Technology education courses should not be moved to the community colleges.
3. If not in place, fully articulated TECH-PREP agreements should be developed for all technology education programs.
4. Only fully certified teachers should be hired to teach technology education courses.
5. Advisory councils should be establish at the local level for all technology education programs.
6. Technology education teachers should work with their principals to better educate them on the advantages of having strong TSA programs.
7. State vocational education leaders should explore the possibility of obtaining State Board approval for granting science credit for technology education courses.
8. Teacher training programs technology education should review their curricula requirements and make revisions to increase science instruction if necessary.

9. Technology teachers should extend invitations to their principals and local directors of vocational education to accompany them to state and national vocational student organization activities.

10. State vocational education leaders should explore the possibility of obtaining State Board approval for granting science credit for technology education courses.

REFERENCES

Frantz, N. R., Strickland, D. C., & Elson, D. E. (1988). Is secondary vocational education at risk? Vocational Education Journal, 63(7), 34-37.

Miller, L. E. & Smith, K. L. (1983). Handling non response issues. Journal of Extension, 45-50.

NAVE (1989). Summary of findings and recommendations. National Assessment of Vocational Education. U. S. Department of Education.

National Research Council (1988). Understanding agriculture: New directions for education. National Academy Press, Washington, DC.

Sperling, D. (1989). A push to improve vocational education. USA Today, June 27, 1989, 6D.

Thompson, D. E. (1986). Examining superintendents', vocational agriculture teachers', and vocational agriculture students' perceptions of vocational agriculture programs. The Journal of the American Association of Teacher Educators in Agriculture, 27(4), 32-41.

Tyler, R. W. (1987). Education reforms. Phi Delta Kappan, 69(4), 277-280.

United States Department of Education. (1979). Understanding the attitudes of secondary principals and superintendents in the state of Washington toward vocational education. United States Government.

HOME ECONOMICS UNDERGRADUATES' ETHICAL INCLINATIONS PRECEDING AND FOLLOWING ETHICS INSTRUCTION

Cheryl L. Lee

Department of Home Economics

Appalachian State University

Introduction

Due to the growing interest in ethics education, several colleges and departments have implemented undergraduate courses designed to increase students' awareness of ethical issues (Camenisch, 1986; Mumaw, 1990). Family and consumer science and home economics colleges and departments are no exception. Presumably such courses will better prepare students for the ethical dilemmas they will inevitably encounter in their professional careers; however, they provide a challenge for administrators and educators who question what, how, when, and where ethical issues should be addressed in the curriculum (Haemmerlie & Matthews, 1988).

Some contend it is too late to teach ethics in the collegiate environment because they feel students' values are already well formed (Bunke, 1988). However, others argue an ethics course should not intend to change values and behaviors, but instead should teach students systems of ethical analysis and sensitivity to the decision process (Fraedrich & Guerts, 1990; Hosmer, 1988). With this cognitive focus, ethics instruction is actually well placed in the college curriculum (Martin, 1990).

The issue of what should be taught in an ethics course is complex. It has been suggested that at the very minimum, undergraduates need to be aware of general guidelines about appropriate behavior in professional settings and how professionals interact with each other (Haemmerlie & Matthews, 1988). However, some question the possibility of teaching these ethical guidelines without promoting specific moral values (Carruth & Carruth, 1991). Others warn that without a moral dimension, ethics instruction may view ethical dilemmas too simplistically (Hosmer, 1988). Harvard's former President, Derek Bok (1988), suggests an ethics course should principally aim to make students more perceptive in recognizing and dealing with ethical problems when they arise, not to impart "right answers."

In attempting to increase students' awareness of ethical issues, the traditional college instructional method, the lecture, is often ineffective (Schaupp, Ponzurick, & Schaupp, 1992).

Since the topic of ethics is value bound, the arguments for ethical behavior often take on a parent-child format. The instructor advocates ethical behavior which the student dismisses as naive and unprofitable. Overall, such ethical lectures are often perceived by students as boring and irrelevant. A more effective method for presenting ethical principles might be the case study method, a discussion-based, active-learning pedagogy designed to guide participants in problem analysis and problem solving (Haemmerlie & Matthews, 1988; McMinn, 1988). Case studies are interesting and increase the salience of the principles being taught. In addition, they can realistically illustrate ethical dilemmas which students are likely to encounter in their future professions, allowing them to confront situations which frequently lack clear right and wrong answers.

As with course content and method, ideas concerning when and where ethics should be addressed in the curriculum also vary. Some feel ethics should be integrated into several courses throughout the undergraduate curriculum (Gandz & Hayes, 1988). However, assuming that students receive an ethical foundation elsewhere can result in inadequate coverage of ethical issues; therefore, others contend that ethics should be taught separately (Martin, 1990; Singh, 1990). In either case, most agree the subject of ethical behavior should be introduced early to serve notice to students that ethics will be an integral part of their future professional life (Bok, 1988; Haemmerlie & Matthews, 1988).

Despite differences in perspectives, increasing numbers of administrators and educators consider ethics instruction vital for students. At one major university, "Professionalism and Ethics," a sophomore-level, one-hour course was developed and implemented in the undergraduate curriculum of the College of Human Environmental Science. The four major goals of this required course were to: (1) identify characteristics commonly associated with professionals and professionalism; (2) examine principles of ethics and legal, social, and individual dimensions of ethical behavior; (3) identify and analyze professional/ethical dilemmas encountered in each content area of the profession; and (4) explore strategies which promote professionalism and ethical behavior. In essence, the course presented a combination of basic

professional and ethical principles along with cases illustrating the application of these principles. The structure of the courses is presented in Table 1.

Table 1: Course Structure of HEC 2001 - Professionalism and Ethics

Course Description: An analysis of ethical issues and strategies for developing professionalism in specialized areas of the profession.

Course Outline:

- Professionalism - What is it?
- Characteristics of Professionals
- Professional Employment Issues
- Legal/Ethical Issues
- Academic Honesty/Dishonesty
- Principles of Ethics
    - Competence
    - Responsibility
    - Moral and Legal StandardsConfidentiality
    - Welfare of the Client
    - Professional Relationships
- Professional/Ethical Dilemmas
- Sexual Harassment
- Professional/Ethical Responsibility

How will the inclusion of such an ethics course in a student's undergraduate program impact his/her ethical awareness and decision processes? Although ethics courses are appearing more frequently in the undergraduate curriculum, little has been written concerning their implementation in the family and consumer science/home economics curriculum, and few have been studied to determine their impact. As a result, there is no evidence that relates such courses to more ethical decisions and actions (Pratt & McLaughlin, 1989).

Purpose and Objectives

The purpose of this study was to assess the impact of ethics instruction at the undergraduate level by determining students' ethical inclinations before and after completion of the professionalism and ethics course. It was determined that students' ethical decision processes might best be evaluated by using dilemmas in familiar academic settings. With that in mind, the specific objectives of this study were to:

1. Compare students' decision processes concerning academic dishonesty before and after completing an ethics course.
2. Assess students' perceptions regarding the ethics course.

Procedures

Questionnaires were completed at the beginning of the first class prior to any instruction by 155 undergraduates enrolled in the professionalism and ethics course and again at the end of the semester by 132 students. The instrument included an academic issues survey which was modified slightly from that of Daniel, Blount, and Ferrell (1991). Specifically, this section asked students, "If you were certain you would not get caught, how likely is it that you would engage in the following behaviors?" Students were asked to respond to 20 dishonest academic behaviors by using a five-point Likert-type scale which ranged from "very likely" to "very unlikely." To estimate the internal consistency of the items in this section, Cronbach's alpha was calculated. Coefficients of .92 and .91 were obtained on the pre- and post-assessments, respectively, indicating the instrument was highly reliable.

In addition to the academic issues survey, the instrument administered at the end of the semester requested students' perceptions regarding the effectiveness of the ethics instruction and structure of the ethics course. Demographic information including gender, age, grade point average, classification, and major was collected at both administrations.

A *t*-test for paired samples was utilized to determine whether differences existed between students' ethical inclinations prior to and following completion of the ethics course. Descriptive statistics were used to analyze students' perceptions of the ethics course.

Findings

Usable questionnaires were returned by 154 students at the beginning of the semester. Respondents included 133 females and 19 males; two individuals did not reveal their gender (Table 2). Eighty-seven students were 20 years of age or younger, while 52 were 21-25 and 13 were 26 or older. Two students did not provide their ages. The majority of students possessed grade point averages of 2.5-3.49 on a 4.0 grading scale, and most were classified as sophomores or juniors. Approximately one-half of the respondents were in the Family Relations and Child Development Department, while approximately one-fourth were in Design, Housing, and Merchandising. Most of the remaining were in Nutrition Sciences or Hotel and Restaurant

Usable questionnaires were returned by 130 students at the end of the semester. These included 112 females and 17 males; one individual did not provide his/her gender (Table 2). Although slightly fewer students completed the instrument at the end of the semester, the group's characteristics were similar to those at the beginning of the semester in terms of age, grade point average, and department; only a few were majors outside the College of Human Environmental Science.

Table 2: Characteristics of Respondents

	Pre-Administration		Post-Administration	
Variable	**Frequency**	**Percent**	**Frequency**	**Percent**
Gender				
Female	133	86.4	112	86.2
Male	19	12.3	17	13.1
Age				
20 or younger	87	56.5	75	57.7
21-25	52	33.8	43	33.1
26 or older	13	8.4	11	8.5
Grade Point Average				
3.5-4.0	27	17.5	25	19.2
3.0-3.49	47	30.5	50	38.5
2.5-2.99	49	31.8	43	33.1
Lower than 2.5	30	19.5	10	7.7
Classification				
Freshman	24	15.6	18	13.8
Sophomore	62	40.3	54	41.5
Junior	44	28.6	38	29.2
Senior	23	14.9	19	14.6
Major				
Family Relations & Child Development	68	44.2	58	44.6
Design, Housing &	39	25.3	29	22.3

Merchandising				
Nutrition Sciences	20	13.0	15	11.5
Hotel & Restaurant Administration	20	13.0	19	14.6
Other	6	3.9	8	6.2

Frequency of Dishonest Academic Behaviors.

At both the beginning and end of the course, the most frequently practiced dishonest academic behaviors in which respondents reported they would engage included: (1) working in groups on a project assigned as individual work (mean score of 2.97 at the beginning of the semester; 3.30 at the end); (2) getting test answers from another student who had previously taken the exam (mean score of 3.08 at the beginning of the semester; 3.27 at the end); (3) and writing up fictitious accounts of observation assignments without genuinely completing the required observations (mean score of 3.46 at the beginning of the semester; 3.63 at the end) (Table 3). Note that lower mean scores indicate students' greater likelihood to engage in a dishonest academic behavior, while higher mean scores indicate students' lesser likelihood to engage in academic dishonesty.

Dishonest academic behaviors in which students were least likely to engage included: (1) taking an exam for another student; (2) removing and keeping pages of an exam when the instructor does not allow students to keep the exam; (3) tearing pages from a book or journal in the university library; (4) removing pages from a reserved reading file rather than making copies for one's own use; (5) changing a response after a paper or exam is returned and then reporting to the instructor that there has been an error in the grading; and (6) claiming to have turned in an assignment when one really has not (Table 3).

Table 3: Mean Scores for Dishonest Academic Behaviors*

Dishonest Academic Behavior	Pre-Test Mean	Post-Test Mean
1. Copying test answers from another student	1.	1.
2. Getting another to write your paper	2.	2.
3. Taking an exam for another student	3.	3.
4. Copying from a "cheat sheet" during exam	4.	4.
5. Submitting purchased paper as own work	5.	5.
6. Writing fictitious observation assignments	6.	6.
7. Seeking test answers before exam from another	7.	7.
8. Working in groups on assignment meant to be individual work	8.	8.

9. "Padding" bibliography of paper	9.	9.
10. Making up sources to cite in paper	10.	10.
11. Plagiarizing in preparing a paper	11.	11.
12. Obtaining unauthorized copy of test	12.	12.
13. Fabricating excuse to delay taking test	13.	13.
14. Keeping exam when not allowed by instructor	14.	14.
15. Tearing pages from library journal	15.	15.
16. Removing pages from reserved reading file	16.	16.
17. Changing test response after grading and then reporting grading error to instructor	17.	17.
18. Allowing another to copy from your test	18.	18.
19. Claiming to have turned in assignment when have not	19.	19.
20. Claiming to have contributed to group assignment when have not	20.	20.

*1=Very likely to engage in this behavior; 5=Very unlikely to engage in this behavior.

Comparison of Pre- and Post-Scores.

Pre-scores ranged from a minimum of 37 to a maximum of 100, while post-scores ranged from 51 to 100. A *t*-test on the 118 paired samples indicated a statistically significant difference between students' ethical inclinations before and after completing the ethics course. In this study, students reported more ethical inclinations after completing the ethics course (mean pre-score = 83.53 out of a possible 100; mean post-score = 86.20) (Table 4). Concerning specific academic behaviors, students were significantly less likely at the end of the course to: (1) use a paper purchased from a "term paper company" as their own work; (2) work in groups on a project assigned as individual work; (3) obtain access to an unauthorized copy of a test; and (4) remove and keep pages of an exam when not allowed by the instructor (Table 5).

Table 4: *T*-Test for 118 Paired Samples on Academic Issues Survey

Instrument	Mean	*df*	*t*	*p*
Pre-Test	83.53	117	-2.59*	.011
Post-Test	86.20			

Table 5: *T*-Tests for 118 Paired Samples on Selected Dishonest Academic Behaviors

Dishonest Academic Behavior	Mean Pre-Score	Mean Post-Score	*df*	*t*	*p*
Using paper purchased from "term paper company as own work	4.42	4.64	117	-2.17*	.032
Working in groups on assignment meant to be individual work	3.01	3.27	117	-2.27*	.025
Obtaining access to unauthorized copy of test	4.08	4.35	117	-2.16*	.033
Removing and keeping pages of exam when not allowed by instructor	4.67	4.85	116	-2.21*	.029

Students' Perceptions Regarding Ethics Course.

Table 6 presents students' opinions regarding the ethics course. The majority of students (70.8%) felt the professionalism/ethics class had helped prepare them to make ethical professional decisions. Most (78.3%) reported increased awareness of ethical dilemmas and that case studies were an effective means for studying ethical dilemmas and decision processes (74.4%).

Students were not in agreement regarding ethics being taught as a separate course. However, over half (56.6%) felt that ethics instruction should be integrated throughout the curriculum. Having completed the ethics course with its enrollment of 179 students, the majority of students (63.3%) felt that such instruction would be most effectively presented in a smaller seminar, discussion format.

Table 6: Students' Perceptions Regarding Ethics Course

Statement	Agree (%)	Disagree (%)	Undecided (%)
This professionalism/ethics class has helped prepare me to make ethical professional decisions.	70.8	13.8	15.4
I feel that my awareness of ethical dilemmas was increased as a result of this professionalism and ethics class.	78.3	8.5	13.2
The use of case studies is an effective way to study ethical dilemmas and decision-making.	74.4	9.3	6.3
Ethics instruction should be a separate course in the curriculum.	31.8	33.3	34.9
Ethics instruction should be integrated within other courses in the curriculum.	56.6	16.3	27.1
Ethics instruction is most effectively presented in a large class, lecture format.	14.0	59.4	26.6
Ethics instruction is most effectively presented in a smaller seminar, discussion format.	63.3	11.7	25.0

Implications and Recommendations

Sensitizing students to the ethical decision process is a necessary component of the family and consumer sciences/home economics undergraduate curriculum. Therefore, educators and administrators should determine effective ways to incorporate ethics education into their courses and programs in order to increase students' awareness of ethical issues and to help them develop skills for dealing with such dilemmas.

As ethics instruction is incorporated in the undergraduate curriculum, it is important to determine whether the goals of such instruction are being met. The findings from this study suggest that ethics instruction may increase students' ethical awareness and impact their ethical inclinations concerning various academic behaviors. It also appears that case studies are an effective teaching methodology for presenting ethics instruction.

As this particular course had an enrollment of 179 students and was taught in a large auditorium, opportunities for discussion were limited. Perhaps this contributed to students' perceptions that teaching the course in a smaller seminar, discussion format would be more effective, an implication that is supported by the literature.

Further research using a control group should be conducted to provide more reliable data concerning the impact of ethics instruction. Experimental groups composed of large lecture classes and smaller discussion seminars might provide insight concerning effective methodology for ethics instruction.

References

Bok, D. (1988, May-June). Ethics, the university and society. Harvard Magazine, pp. 39-50.

Bunke, H. (1988). Should we teach business ethics? Business Horizons, 31(4), 2-8.

Camenisch, P. F. (1986). Goals of applied ethics courses. Journal of Higher Education, 57(5), 493-509.

Carruth, P. J., & Carruth, A. K. (1991). Education in ethics: The role of higher education. Journal of Educational Business, 66(3), 168-171.

Daniel, L. G., Blount, K. D., & Ferrell, C. M. (1991). Academic misconduct among teacher education students: A descriptive-correlational study. Research in Higher Education, 32(6), 703-724.

Fraedrich, J. P., & Guerts, M. D. (1990). Ethical awareness for the classroom: A framework. Journal of Education for Business, 66(2), 88-93.

Gandz, J., & Hayes, N. (1988). Teaching business ethics. Journal of Business Ethics, 7, 657-669.

Haemmerlie, F. M., & Matthews, J. R. (1988). Preparing undergraduates for paraprofessional positions: What, where, when, and how are ethical issues taught? Teaching of Psychology, 15(4), 192-194.

Hosmer, L. T. (1988). Adding ethics to the business curriculum. Business Horizons, 31(4), 9-15.

Martin, J. H. (1990). Integrating ethics into the marketing curriculum. Journal of Education for Business, 65(7), 322-327.

McMinn, M. R. (1988). Ethics case-study simulation: A generic tool for psychology teachers. Teaching of Psychology, 15(2), 100-101.

Mumaw, C. R. (1990). Student interactions with professionals on ethics: An interview approach. Home Economics FORUM, 5(1), 9-12, 20.

Pratt, C. B., & McLaughlin, G. W.. (1989). An analysis of predictors of college students' ethical inclinations. Research in Higher Education, 30(2), 195-219.

Schaupp, D. L., Ponzurick, T. G., & Schaupp, F. W. (1992). The right choice: A case method for teaching ethics in marketing. Journal of Marketing Education, 13, 1-11.

Singh, J. B. (1990). Ethics in the business school curriculum: A challenge for the 1990s. Journal of Education for Business, 65(8), 368-373.

Effects of Community Service and Service Leaving on Multidimensional Self Concept of Secondary School Students.

Phillis Q. Ostheim

Vocational Curriculum Facilitator

Wayne County Schools

Goldsboro Middle School

Goldsboro, NC

and

Larry R. Jewell

Associate Professor

Department of Occupational Education

North Carolina State University

Introduction

Service, an old concept, is now in a new inception in public school systems. With national support and exposure, community service as part of the public schools is being referred to as service learning (Maryland Student Service Alliance Curriculum Development Team, 1989). The climate which is bringing about support of service learning is inherent. Legislative support and acceptance is wide spread, private grants and federal money are abundant, and implementation is beginning.

National education goals state that by the year 2000, every school in America will ensure that all students will be prepared for responsible citizenship, which includes further learning followed by productive employment (Educational Programs that Work, 1993). Two objectives in meeting these goals include the statements that (1) "all students will be involved in activities that promote and demonstrate good citizenship, community services, and personal responsibility" and (2) "all students will be knowledgeable about the cultural diversity of this nation and about the world community" (Educational Programs That Work, 1993, p.6) This kind of support for service learning is gaining attention in educational realms.

Proponents of the national goals state that our nation should be one that utilizes national service. National service can be "the vehicle that enables young people to become active participants in community problem-solving" (Kirsch and Browne, 1993, p.15). It is believed that as young people are viewed as leaders and resources to the communities, they will rise and accept the challenge of addressing and dealing with community needs in effective and lasting ways (Kirsch and Browne, 1993). Through community service, students are more likely to pass on their sense of hope and idealism, as well as their practical skills. This may cause the students to find ways to bring new human, financial, and material resources to their service sites (Kirsch and Browne, 1993). Should this be true, then our nation should be prepared to meet the educational challenges in offering community service activities within the school setting.

James Kielsmeier, President of the National Youth Leadership Council, stated that "service learning recasts the conventional role of school to that of a laboratory of learning in

which students both gain and apply knowledge and skills to address real world problems" (Kielsmeier, 1993, p.11). In essence, Kielsmeier saw service learning as an additional approach or method of instruction. Further, it challenges the superficial level of knowledge that is currently measured with standardized tests. Thus, American education should address important questions of how to apply present knowledge to our daily living.

Need for the Study

In 1991, the National Society for Internships and Experiential Education (NSIEE) obtained the support of various foundation groups to develop a research agenda for service learning. Believing that service learning is both a type of program instruction and part of a philosophy of education, NSIEE had concerns over the small amount of research in this area. Despite the educational benefits (such as better attitudes and more caring and nurturing personality traits) gained from service learning, there was a scarcity of reliable qualitative and/or quantitative research. NSIEE wanted to encourage researchers to study how service learning affects student learning development, the communities, and the educational institutions. NSIEE also concluded that research on service learning may help answer the question of how to improve educational effectiveness in the schools (Giles, Honnet, and Migliore, 1991). A literature review two broad themes have emerged for research consideration. They are: (1) The effect of service learning on a student's development; and (2) how service learning may affect social institutions and our democracy (Giles, Honnet, and Migliore, 1991). This study addressed the need for research involving the first theme-measuring the effect of service learning on a student's development of self concept. This study explored changes that occur in a student's total self concept as well as within six different self concept domains. These domains include social, competence, affect, academic, family, and physical. Through this study, more knowledge will be made available on the study of a student's development of self concept.

Purpose of the Study

The purpose of this study was to examine whether a student's self concept will change significantly as a result of participating in a service learning or community service project. More

specifically, this study measured if there was a significant change in the global self concept or in the six domains of self concept of Southern Wayne High School students after participation in a service learning activity.

Statement of Hypothesis

This research considered the participants' perceptions about themselves, and the degree of self concept students have regarding themselves before and after participation in a service learning and community service project. The null hypothesis is stated as follows: There is no significant difference between the students' self concept before and after participating in a service learning or community service project.

Research Methods and Procedures

Population and Sample

Participants for this research study were students enrolled at Southern Wayne High School in Dudley, North Carolina during the 1993-1994 academic school year. This school housed approximately 1400 students in grades 9-12. The participants in this research project were teenagers in grades 10-12 who were enrolled in vocational elective courses. Three intact groups were chosen for the study. Groups two and three were students who were enrolled in the researchers' vocational classes. Group one was randomly drawn from the remaining vocational department elective offerings. Random selection was also used in selection which group would receive the classroom and reflection activities. A total of 84 students participated as follows: Group one (n = 27), Group two (n = 30), and Group three (n = 27).

Instrumentation

The Multidimensional Self Concept Scale (MSCS) was the data collection instrument. Bracken (1992) stated that it is a thoroughly researched and standardized clinical instrument which assesses global self concept and six self concept domains that are theoretically and functionally important in the social-emotional adjustment of adolescents. The six self concept domains include social, competence, affect, academic, family, and physical.

The internal consistency measure for the six subscales averaged together for grades 10-12 had the following alpha coefficients: Social = .90, Competence = .87, Affect = .93, Academic = .87, Family = .97, and Physical = .92. The total global self concept scores has an internal consistency coefficient of .98 for the total sample (Bracken, 1992, p.44). Stability coefficients based on test-retest data for each of the six subscales were as follows: Social = .79, Competence = .76, Affect = .73 t= .73, Academic = .81, Family = .78, Physical = .81, and Total = .90 (Bracken, 1992, p.46). Because of the strong reliability coefficients and the nonsignificant mean score differences across the test-retest interval, Bracken (1992, p.45) stated the "the MSCS appears to assess a construct that is stable and resistant to chance score fluctuations. The instrument evidence both internal consistency and stability that are sufficiently high to warrant its use as a clinical assessment device, as well as a robust research tool."

To establish content validity, the MSCS was compared to over 70 personality scales which assess one or more of the domains contained in the MCSC. Several concurrent validity studies were also conducted during the MSCS development (Bracken, 1992). The Coopersmith Self-Esteem Inventory and Piers-Harris Children's Self Concept Scale were the first studies to determine validity. The MSCS Total Scale score correlated .73 with the Coopersmith and .85 with the Piers-Harris total test scores (Bracken, 1992, p.48). Five published self concept scales were used to determine construct validity. These studies have established the MSCS provides clinicians and researchers with several improvements over existing self concept instruments.

Procedures

The study was conducted over the months of May and June of 1994 at Southern Wayne High School in Dudley, North Carolina. Three intact classes of students in grade 10-12 were selected to participate. There were two experimental groups (Groups two and three) and one control group (Group one). The specific procedures for each group is given below:

Group one was given the MSCS as a pretest. Following six weeks, the MSCS was given again as a posttest. Group one was located in a different area of Southern Wayne High School and was unaware that Groups two and three existed. Groups two and three were also unaware that Group one existed.

Group two was given the MSCS as a pretest. They were then directed in ten classroom activities which prepared them for the service learning activity. These activities were performed before the service learning activity started and included ten items, nine of which were found in the instructional framework handbook by the Maryland Student Service Alliance Curriculum Development Team.

The ten activities included: (1) List ten of your most valuable possessions. Narrow your list to five; narrow your list to three. This is what you would take to a nursing center as a new client. (2) Write an essay about an older person you know. Describe what their lives are like. (3) Have students describe how they view elderly people in general or a particular elderly person they know. Discuss: Do you think the aging people you know are just like other aging people or are they exceptions to the rule? (4) Invite the Project Activities Director of the local nursing center to class to talk with the class about the needs of clients. (5) Make a collage showing the physical changes you will experience as you age or make a display of pictures showing the aging process. (6) Discuss what popular myths about the aging are perpetuated by cartoons, children's literature, magazines, and television. (7) Observe elderly people to see if they do things or behave in a way that give unfavorable impressions. What reasons can you give for their behavior? (8) Collect articles from newspapers and magazines about the elderly and agencies serving them. (9) Have a round-table discussion on the topic: What can be done in our community to help bridge the gap between generations? What are the barriers to interacting with people of a different generation? (10) Compare life expectancy now with life expectancy in the 1950s (Maryland Student Service Alliance Curriculum Development Team, 1989).

Once these activities were taught and discussed, the researcher chaperoned Group two to Medical Park Nursing Center for a minimum of 21 hours of volunteer work. While at the nursing center, students performed a minimum of ten activities which were developed by the nursing center project activities director. These activities included: (1) Posting daily schedules on each station. (2) Changing Reality Orientation Boards on each station and in the dining room. (3) Assisting in delivery and reading of mail and writing notes and letters for residents. (4) Assisting in decorating of rooms. (5) Escorting residents inside and outside the facility. (6)

Assisting residents to and from activity functions. (7) Assisting the Activity Director and staff with group activities. (8) Leading small group activities. (9) Visiting residents one on one by sharing and listening. (10) Engaging residents in simple activities such as finger play and board games.

Following each visit to the nursing center, Group two was given reflection activities which were recorded in journals. These reflection activities were recommended in the instructional framework handbook by the Maryland Student Service Alliance Curriculum Development Team (1989). Topics explored by students included: (1) Describe the people you met today. (2) Describe the place we were in: the light, color, decoration, and ventilation. (3) In two words describe the atmosphere of the place. (4) What was the best/worst thing that happened today? (5) If we had done Y activity instead of X now, would things have been different? (6) How did you feel when we first got there, how did you feel when we left? (7) What did you learn about yourself? (8) What did you learn about the elderly? (9) Who assumed leadership roles during today's activity? (10) How did the group respond to the leader? (11) What would you like to say to others about you experience if you had to opportunity? (12) How is your life similar to and different from the residents? (13) How does this experience compare with others you have had? (14) Describe a friendship that you have developed at the center. (15) What tips would you leave for new volunteers coming into the nursing facility? (16) Complete a Critical Incident Report for incidences that occurred which were confusing or troubling.

Other reflection activities involved the reading of passages from the Great Books. These passages include: Fundamental Principals of the Metaphysics of Morals by Immanual Kant, Anatomy of Melancholy by Robert Burton, The Rhetoric by Aristole, The Histories by Herodotus, and The Apology of Raymond Sebond by Michel de Montaigne. All of these selections were recommended by the Maryland Student Service Alliance Teacher Training Manual for service learning programs that dealt with the aged (Townsend & O'Neill, 1990) and published in the manual by The Maryland Student Service Alliance Curriculum Development Team (1989). The Maryland Student Service Alliance program is recognized nationally as a model for service learning programs. Following the six weeks of service learning activity, the

MSCS was once again given as a posttest. Students in Group two were aware that Group three was also visiting the nursing center but they were unaware that the classroom activities and reflection activities were only being conducted with their group.

Group three was given the MSCS as a pretest. The researcher then chaperoned the students in Group three to Medical Park Nursing Center for a minimum of 21 hours of volunteer work. While at the nursing center, students performed a minimum of ten activities which were developed by the nursing center project activities director. (These activities were identical for Groups two and three). Following the six weeks of service learning activities, the MSCS was once again given as a posttest. Group three was aware that Group two was visiting the nursing center but was unaware that additional treatment was being given Group two.

Data Collection

Confidentiality was assured for all participants by using student identification numbers which all students at Southern Wayne High School are presently assigned. Pretest and posttest were administered by the researcher and by the control group's instructor. Students in all intact classes were given 30 minutes to complete the tests. Bracken (1992) indicated that the MSCS can be administered in 20-30 minutes. Raw data used in the research analysis consisted of pretest and posttest scores taken from the administration of the MSCS. The subdomain and total scores were manually computed by the researcher and then entered into a computerized data set and analyzed by StatView SE, a statistical software program.

Statistical Procedures

The most popular analyses recommend for a mixed design of pretest-posttest control-group design is either independent-groups

t-test or analysis of variance. This study used multivariate analysis of variance (MANOVA). MANOVA techniques provide an analysis of the overall differences between the treatments considering all of the dependent variables (six domain subscales) simultaneously. Because of having three groups, Wilks' Lambda was the statistic selected for research analyses. An alpha

level of .05 was selected a priori for this study. In addition, the data were described using measures of central tendency and measures of variance.

Findings

Demographics of the Population

Of the 84 students participating in the study, 64.29% (n = 54) were white, 34.52% (n = 29) were African American and 1.19% (n = 1) was Hispanic. Of the same students, 70.24% (n = 59) were female and 29.76% (n = 25) were male.

One-way ANOVAs were computed by ethnic group on the total multidimensional self concept scale as well as individually on each subdomain. The one-way ANOVA results showed no statistical significance by ethic group. One-way ANOVAs were also computed by gender on the total multidimensional self concept scale as well as on each subdomain. The one-way ANOVA by gender showed no statistical significance. Therefore, it was concluded that neither ethnic make up nor gender will make a difference in the self concept of participants in service learning activities.

Results

In order to control for experiment-wise error resulting from multiple ANOVAs, multivariate analysis of variance (MANOVA) was used to test the hypothesis in this study. The hypothesis stated there would not be a significant difference between the students' self concept before and after participating in a service learning or community service project. The Wilks' Lambda pretest statistic = .881 [F = 1.735, p = .1242] was not significant, indicating that there were no statistical differences among students in the pretest global self concept score. Thus all of the groups were assumed to be similar. The Wilks' Lambda posttest statistic = .977 [F = .304, p = .9332] also was not significant, indicating there were no statistical differences among students in the posttest global self concept score. Because the F test was not significant at the .05 level, the hypothesis was accepted. Since the multivariate test was not significant at the established alpha level, no further statistical tests were performed.

The most revealing data available to the researcher was the gain scores of each group. It is notable to mention that Group two, the experimental group that participated in the teaching and reflection activities had the highest gain of 12.87 points in their total self concept scores. Group three, the other experimental group that only participated in the community service project also had a positive gain of .41 points. The control group, Group one, actually experienced a decline in the overall self concept scale with a loss of 7.41 points. Table 1 shows the descriptive statistics for the gain scores of each group.

The total sample gain mean was 2.35 with standard deviation of 40.22. In measuring each dependent variable simultaneously, it was found that the Wilks' Lambda statistic = . 910 [F = 1.267, p = .2826] was not significant, indicating there were no statistical differences in the gain scores among students in each of the six domains as well as the gain on the total self concept score. Even though Groups two and three experienced a positive gain score, it failed to be statistically significant.

Table 1: Means and Standard Deviation of Gain Scores

	Group 1		Group 2		Group 3	
	M	SD	M	SD	M	SD
Gain total	-7.41	38.32	12.87	34.87	0.41	45.94
Gain social	1.30	6.72	1.30	8.42	-1.56	14.22
Gain competence	-0.63	8.30	2.83	8.08	1.19	8.06
Gain affect	-1.07	7.07	2.83	6.87	0.19	7.97
Gain academic	0.00	6.18	1.73	7.10	-1.26	8.31
Gain family	-2.70	13.44	-0.03	8.89	2.22	13.13
Gain physical	0.07	5.74	2.03	9.13	0.30	11.37

Conclusion

The following conclusion was drawn as a result of this research:

> The global self concept of high school age students is not affected by their participation in service learning or community service projects which have a six-week duration with 21 hours of volunteer contact hours.

Discussion

Despite the quantitative evidence that self concept changes were not statistically significant, there were positive gains in the overall global self concept scores. Students involved in service learning programs did experience positive changes in attitude as a result of their participation. Reflection journals kept by Group two give evidence that attitude changes did take place. When asked the question, What have you learned about yourself, one student wrote, "Well, I use to take things for granted, especially life, as we all know it as freedom. The people we visit are needy and no longer have that freedom. So now I am learning the true meaning of life and not to take anything or anyone for granted." Another student responded, "I have learned that I haven't earned the right to groan and complain yet."

In asking students about friendships developed at the nursing facility, one student wrote "I have developed a friendship with the woman I read to and the man that I go talk with every visit. Both are blind, but they can recognize me at the sound of my voice. They both seem very happy each time I visit." Another student wrote, "The lady I visited told me that she misses me when I leave her; that touched my heart." Another student summarized her feelings by saying, "This one lady who is 95 years old has just captured my heart completely...even though our ages are vast in years, we share the same feelings and thoughts. I cherish the friendship that has blossomed between us."

One student's writing seemed to sum up the feelings as expressed vocally by Group two. She wrote, "In my opinion, this has been the greatest experience! They (the nursing home residents) make me know that life is worth living. Just knowing that I have helped them or reached them gives me the greatest feeling. On days that are trying and difficult, their warm smiles and touches help me make it through the day. And knowing that these people have conquered the trials of life gives me reassurance, that I too, will conquer life!" This type of attitude, as expressed through journal writing, clearly shows the benefit of including reflection activities in a service learning project.

The need for critical reflection has been reported in the past by previous researchers. Conrad and Hedin (1989) stated that students involved in service learning programs with reflective seminars demonstrated higher gains than others. Krug (1991/93) indicated that the need for reflection was absolutely critical to the students' success. Research which has shown significant changes in self concept usually has contained a qualitative component. Self concept is such a fragile thing in a student's life and is so flexible from day to day according to experiences. Therefore, self concept is a difficult thing to measure.

Since both experimental groups had positive, though statistically insignificant, gains in global self concept scores, changes in intensity, duration, and frequency of service learning programs may have a more prevailing effect on the participants. Crosman (1989) stated that a few hours once a week does not allow students to develop the sense that the task mattered in the long run. Crosman also stated that project design is extremely important so that students know what is expected of them. The six weeks or 21 hours of volunteer work may have been too short of a duration for changes in development of self concept to occur. Research studies that reported significant changes in self concept were all in excess of six weeks duration.

Recommendations for Further Research

1. This study was conducted over a period of six weeks. Additional studies may extend the duration of time in order to intensify the experience for the participant.
2. Participants in this study contributed a minimum of 21 volunteer hours in the local nursing facility. The amount of volunteer time should be lengthened in order to measure development and changes within a student's self concept.
3. Both qualitative and quantitative data are needed in exploring changes that occur in development of self concept.
4. The experimental groups could have profited with more indoctrination of the value of the volunteer experience.

References

Bracken, B. A. (1992). Multidimensional self concept scale examiner's manual. Texas: pro-ed.

Conrad, D. & Hedin, D. (1989). High school community service: A review of research and programs. University of Wisconsin, Madison, WI: National Center on Effective Secondary Schools.

Crosman, M. D. (1989). The effects of required community service on the development of self-esteem personal and social responsibility of high school students in a Friends School (Doctoral dissertation, Lancaster Theological Seminary). Dissertation Abstracts International, 50, 495.

Educational programs that work. (1993, p.6). Goal 3: Student Achievement and Citizenship

Giles, D., Honnet, E. P., & Migliore, S., (Eds.). (1991). Research agenda for combining service and learning in the 1990's. Raleigh, NC: National Society for Internships and Experiential Education.

Kielsmeier, J. (1993) Service learning recasts the conventional role of school to that of a laboratory of learning. Serve! America, II, 11.

Kirsch, V., & Brown, K. (1993). Leaving a legacy. Serve! America, II, 15.

Krug, J. L. (1993). Select changes in high school students self-esteem and attitudes toward their school and community by their participation in service learning activities at a Rocky Mountain high school (Doctoral dissertation, University of Colorado at Boulder, 1991) Dissertation Abstracts International, 54, 757.

Maryland Student Service Alliance Curriculum Development Team. (1989). Maryland student service alliance: The courage to care. The strength to serve. Draft instructional framework. Baltimore, Maryland: Maryland State Department of Education.

Townsend, K. & O'Neill, M. (1990). Maryland student service alliance: The courage to care. The strength to serve. Teacher training manual. Baltimore, Maryland: Maryland State Department of Education.

Skills Employers Really Need

From Their High School-Graduated Employees

Kenneth S. Volk, Ph.D.

Henry A. Peel, Ed.D.

School of Education

East Carolina University

Greenville, North Carolina

Introduction

This paper summarizes the results of a study conducted by Volk and Peel (1994) which examined the skills required of employees with only a high school diploma. Conducted during the Spring of 1994, the study was published in an Executive Summary which was eventually disseminated to State Representatives, school superintendents, and manufacturers. In total, over 4000 copies of the report, detailing the results through tables and charts, have been made available by the authors and the Eastern North Carolina Consortium for Assistance and Research in Education at East Carolina University.

The Issues

There has been a great deal of discussion in recent years about the need to prepare young people for the challenges they will face in a technology-based global economy. To meet this challenge, schools must help students master the necessary reading, writing and math skills required for employment. Students must be confident in their ability to communicate, critically think, and work in group situations. Given these highly-technical times, students must also have an understanding of technological innovations, and issues affecting their lives. In essence, schools must prepare students to live knowledgeably and contribute productively in this complex environment.

Despite calls for an educated workforce, in North Carolina there remains a sizable number of individuals that do not receive post-high school education or training. According to the Statistical Profile of North Carolina Public Schools (North Carolina State Board of Education, 1985), nearly 20 percent of the high school graduates do not pursue further education through community colleges, universities, or the military.

Considering the need for employees' basic skills and the lack of post-high school education being obtained by many in North Carolina, several critical issues were examined. First, how many people are hired with only a high school education by the major manufacturing firms in North Carolina? Second, what are the projected trends of employment? That is, will employers likely continue to hire high school graduates at the current rate, or will openings for high school

graduates increase or decrease? Third, and the primary focus of this study, what types of skills do employers require of high school graduates?

The Study

A survey of manufacturers in North Carolina was used to determine basic academic and vocational skills required of employees with only a high school diploma. In designing the instrument, necessary skills required for an educated and employable citizenry were reviewed through the policy and position papers issued by a number of government, manufacturing, and educational organizations. Included in these organizations were the American Society for Training and Development, the National Center for Education and the Economy, the North Carolina Department of Economic and Community Development, and the U.S. Department of Labor. From the list of competencies identified, an instrument was designed to determine the importance of various academic and vocational skills.

Manufacturers with over 500 employees, identified through the Directory of North Carolina Manufacturing Firms (North Carolina Department of Economic and Community Development 1992) were mailed surveys. Each survey was addressed to the representative identified in the Directory; most often the company president or plant manager. The representatives were asked to rate skills as absolutely required, desired but not required, or not required from a high school graduate in their firm. Approximately one month after the initial mailing, a follow-up mailing was conducted for those not responding to the first mailing. From the 289 firms identified and sent surveys, 129 responded. This represented a 45 percent response rate. For data analysis, the manufacturing firms were categorized by the number of employees at their location and their type of manufacturing operation.

Profile of Survey Respondents

The Survey of Basic Academic and Vocational Skills requested information from employers concerning the number of current employees and anticipated hirees with only a high school diploma. The purpose of collecting these data was to establish the availability of jobs in manufacturing firms which require only a high school education.

Table 1 provides a profile of the employees hired, according to the manufacturing firm representative. As indicated in Table 1, over 69 percent of the employees from these manufacturing firms are hired with only a high school diploma. The employers also reported there exists a large number of jobs that could be done by high school graduates. According to these firms, nearly three-quarters of the jobs could be done by someone with only a high school diploma.

Table 1: Employee Profiles

Characteristic	Average Response %
Percentage of people employed with only a high school degree.	39
Percentage of jobs that could be done by someone with only a high school degree.	73
Percentage of people hired in the past year with only a high school degree.	72
Future number of employees expected to be hired with only a high school diploma will:	Percentage of Total
Increase	13
Decrease	30
Remain the same	57

There was a high percentage of high school graduates hired last year by these manufacturing firms. This number compares favorably with the number of jobs that can be done with a high school diploma. Over half the firms felt their percentage of new hirees requiring only a high school diploma will remain unchanged in the future. Only 13 percent indicated an increase, while 30 percent indicated a decrease.

Also requested in the survey were skill levels needed from employees with high school degrees. Statements regarding skills or competencies were generated from a review of current reports on education. These skill statements addressed not only academic concerns; issues regarding personal attitudes and conduct were included as well. Nine categories were used to group the skill statements for the survey. Category headings were generally patterned after an earlier study conducted by Northern Illinois University (1991) which only broadly defined these skill areas. The following pages summarize the results.

Reading, Writing and Math Skills

Employers agreed that basic math and reading skills were absolutely required for high school graduates to successfully enter the workforce. Graduates should be able to perform the simple mathematical functions of addition, subtraction, multiplication, and division. Almost equally important was an understanding of common job-related words. Generally, high school graduates who are seeking employment need to be proficient in reading at a level comparable to reading the local newspaper. Seventy-six percent of those surveyed absolutely require this level of reading to be successful on the job.

There was less agreement among employers concerning required mastery level of skills beyond basic reading and math. For instance, few employers require high school-degreed employees to understand algebra. While half of the respondents desire this skill, less than 20 percent require it. Understanding principles of geometry was, in fact, as important to employers as algebra. An interesting finding from this study was that more employers desired skills in elementary statistics than either algebra or geometry. Writing skills were viewed as being less important than the reading and math, with employers generally desiring these skills, but not requiring them.

Communication Skills

A great deal of consensus was found among employers related to communication skills needed for high school graduates. There were few employers who did not require graduates to be able to give or follow clear directions. All but two survey respondents required or desired these general listening and speaking skills. The expectation is that high school graduates who go directly to work, must be able to follow procedural instructions and speak clearly. Listening skills and the skills necessary to give clear directions were viewed as being equally important. Over 70 percent of the respondents considered these skills to be absolutely required of high school graduates. While communication skills encompass more than just listening and speaking, there was little indication that employers required such skills as representing information graphically. Less than seven percent absolutely required their employees have the ability to

sketch objects in multiview. While most employers did not require high school graduates to speak or understand another language, only one-fourth of the employers required or desired these skills.

Critical Thinking Skills

Critical thinking skills were generally viewed as being absolutely required or desired by respondents. Generally, employers desired problem-solvers and independent thinkers. Every employer surveyed required or desired that high school graduate employees demonstrate the ability to solve problems. This item was one of only two statements on the survey that every employer supported to at least some degree. Also important for high school graduates is the ability to troubleshoot problems and make decisions on their own. Over half of the survey respondents absolutely required that employees have these skills.

Group Interaction Skills

All eight skill statements listed in the Group Interaction Skills category received strong support from employers. In fact, of the nine skill categories on the survey, high school graduates needing group interaction skills was marked the highest. With the exception of only three areas: recognizing cultural diversity, recognizing equality of sexes, and participating in group discussions, more than 100 of the 129 respondents indicated all of these skills were absolutely required of high school graduates.

Respondents especially want graduates who can work well with supervisors, team members, and colleagues. All three of these statements had extremely high averages; indicating how extremely important it is for high school graduates to possess the ability to get along with others in the workplace. High school graduates having the ability to work as team members was absolutely required by 94 percent of employers. This skill goes beyond having to work well with supervisors and colleagues. Workers must be able to work together as a team in order to solve problems in the organizational environment. Finally, while there was some disagreement of the importance to recognize cultural and ethnic diversity and the equality of the sexes, both areas received strong endorsements.

Personal Development Skills

There was again a great deal of consensus among employers on the need for high school graduates to enter the workforce with well-defined personal development skills. High school graduates should exhibit self-esteem to be successful in today's manufacturing world. As was the case for graduates having basic problem-solving skills under the Critical Thinking Skills category, every employer required or desired that employees exhibit self esteem. Respondents want high school graduates who set goals and work towards advancement. Employers also expected high school graduates to recognize career options. Finally, skills related to further education and training were considered important. Over 98 percent of the employees absolutely required or desired all five skills in this category. Emphasizing the importance of this category, it is noted that the category of Personal Development Skills was rated as the third most-important category, when average group responses were compared.

Computer Skills

Computer skills were the least important category of skills required of high school graduates. This skill category ranked the lowest of all nine categories. The only skill receiving a high endorsement was the ability to operate a computer keyboard. Even in this case, only 46 percent of respondents absolutely required this skill of its high school-graduated employees. Understanding software for word processing was rarely required but often desired. Only 13 percent of respondents absolutely required, while 68 percent desired this skill. Nineteen percent did not require this skill at all. All other skills listed in this category were rarely absolutely required. With the exception of keyboarding operations and word processing, no computer skill listed was absolutely required by more than 15 of the 129 respondents (12 percent). Equally as important, over 30 percent did not require any of these five skills for high school graduates to enter their manufacturing firms. For instance, even the skill and ability to understand DOS commands was not required by 33 percent of employers. Computer-aided drafting skills were not required by 54 percent.

Technological System Skills

Employers responding to this survey were mixed on the importance of high school graduates needing to understand technology systems. While more than 50 percent absolutely required high school-degreed employees to have the ability to select proper tools or equipment for a given task and follow written directions to assemble equipment, less than 30 percent required graduates to calibrate instrumentation or know how technological systems operate.

The skills necessary to select the proper tools or equipment received an average high rating; suggesting its importance. Following written directions, closely related to the skills of following procedural instruction in the Communication Skills category, received a rather strong endorsement. Knowing how technological systems operate with such features as the inputs, processes, and outputs of manufacturing and communication technology, was absolutely required by only 30 percent of the respondents. However, it was desired by 55 percent. Calibrating instrumentation was the only skill listed on the survey that received a 1.00 rating; indicating the neutrality of employers desiring this skill.

Leadership Skills

Most employers required or desired graduates to have leadership abilities. There was a great deal of consensus among respondents that graduates should enter the workforce with general skills and abilities to lead others. Regardless of whether high school graduates begin in leadership positions, demonstrating leadership skills was viewed as important to employers.

The relative importance of individuals being able to negotiate and resolve conflicts was noted. Over 96 percent thought this skill was absolutely required or desired. This skill compared favorably with the skills listed under the Group Interaction Skills category. While over half of those surveyed absolutely required graduates to be able to negotiate and resolve conflicts, it was less important for high school graduates to be able to motivate others. Only 36 percent absolutely required this skill. Improving organizational effectiveness was considered a valuable skill for high school-graduated employees to possess. Over 50 percent of respondents absolutely required that degreed employees, participate such productivity-related matters

Employability Skills

Employability skills were the second-highest rated skill category in this survey. With the exception of participating in community and civic activities, there was general agreement on the desirability of all skills in this area. A further indication of the importance of the particular skills in this category, was that maintaining quality standards and regular work habits were the two skills from throughout the entire survey that were most often rated by respondents as being absolutely required.

Employers want high school graduates who are punctual and take pride in their work. Over 93 percent (120 of the 129 respondents) absolutely required these skills. Of these four top-rated items, only one respondent per item did not support the skill as being required or desired. For example, of the 129 respondents, 124 absolutely required, four desired, and one did not require that employees demonstrate punctuality. While less important, it was expected that high school graduates practice a healthy lifestyle and have knowledge of the company. Again, many employers (over 70 percent) absolutely required that graduates demonstrate these skills.

Group Comparisons

A comparison was made between the nine categories of skills to gauge their relative importance. Using responses to skill statements in each area, the average for the categories was determined. Table 2 shows the results of the comparison.

Table 2: Group Comparisons

Skill category	Mean	SD
Group interaction skills	1.83	.41
Employability skills	1.79	.45
Personal development skills	1.63	.50
Critical thinking skills	1.51	.61
Leadership skills	1.42	.58
Technological system skills	1.34	.70
Reading, writing and math skills	1.33	.69
Communications skills	1.31	.83
Computer skills	0.82	.65

Group Interaction Skills was the most important skill area high school-graduated employees must have. This category included such skills as working well with colleagues and supervisors,

working as a team member, and respecting others' opinions. The second most important skill area identified by employers was Employability Skills. High school graduates should have skills necessary to maintain quality standards, maintain regular work habits, and take pride in their work. Personal Development Skills was the third most important skill area. This category included exhibiting self-esteem, establishing personal goals, and desiring further education. Basic Reading, Writing, and Math Skills were viewed as being less important to employers than most other skill categories. These basic academic skills ranked seventh of the nine categories examined. It was interesting to note that skill statements relating to statistics, algebra, and geometry were rated low for this category.

Communications Skills rank around third, when the need for foreign language and ability to sketch objects in multi-view are not considered. This category was found to have the greatest variance. Computer Skills were indicated as being less important than all others. Although there was a need for basic keyboarding skills, little indication was given for other areas such as spreadsheets, databases, and computer-aided drafting. A general observation made from these comparisons was that skills relating to affective domains; that is, the attitudes, personalities, and emotions of the employees were rated generally higher than those categories dealing with technical or academic concerns.

Conclusion

Documents such as America's Choice, High Skills or Low Wages! National Center for Education and the Economy, 1991), The SCANS Report (The Secretary's Commission on Achieving Necessary Skills 1991), and America and the New Economy (Carnevale,1991) have identified educational standards and workplace skills. These documents described in great detail the state of the American economy and the changes being made in the workforce. North Carolina's workforce is a reflection of the type and amount of education its citizens receive. With nearly 20 percent of high school graduates not continuing further education through community colleges, universities, or military service, the skills they receive from their terminal program is of

paramount importance. This point, coupled with the over 12 percent high school dropout rate, places even greater significance on the high school experience.

Employers on the other hand, are left with a pool of individuals who may, or may not have the necessary skills for the types of positions available. This study was designed to clarify the necessary skills employers desired of high school graduates. The focus group for the study was manufacturing firms in North Carolina employing more than 500 individuals at their particular locations. Results indicated that high school-graduated employees will remain a commodity in the future. That is, most firms will remain constant or increase the number of jobs requiring a high school diploma. Further results indicate that these graduates may need different skills from what is currently being suggested.

What has been traditionally perceived as the skills necessary for high school graduates to be successful in the workplace was not born out. Reading, writing and math skills, while important, were not given the priority that would be expected. Conversely, group interaction skills received an overwhelming endorsement. Generally, the affective domain was emphasized by employers. Educators, policy makers, and the public are therefore recommended to consider these findings when setting educational priorities, procedures and improvement strategies for the future.

References

Carnevale, A. (1991). America and the new economy. Alexandria, VA: The American Society for Training and Development.

National Center for Education and the Economy (1991). America's choice: High skills or low wages. Washington: author.

North Carolina Department of Economic and Community Development (1992). Directory of North Carolina manufacturing firms. Raleigh: author.

North Carolina State Board of Education (1985). Statistical profile of North Carolina public schools. Raleigh: author.

Northern Illinois University, Center for Governmental Studies (1991). Building public-private partnerships to improve vocational education in Illinois. DeKalb: author.

Secretary's Commission on Achieving Necessary Skills (1991). What work requires of schools: A SCANS report for America. Washington: U.S. Department of Labor.

Volk, K. & Peel, H. (1994). Basic academic and vocational skills required of employees with only a high school diploma. (Executive Summary). Greenville: The Eastern North Carolina Consortium for Assistance and Research in Education, East Carolina University School of Education.